FIG. 1(a)

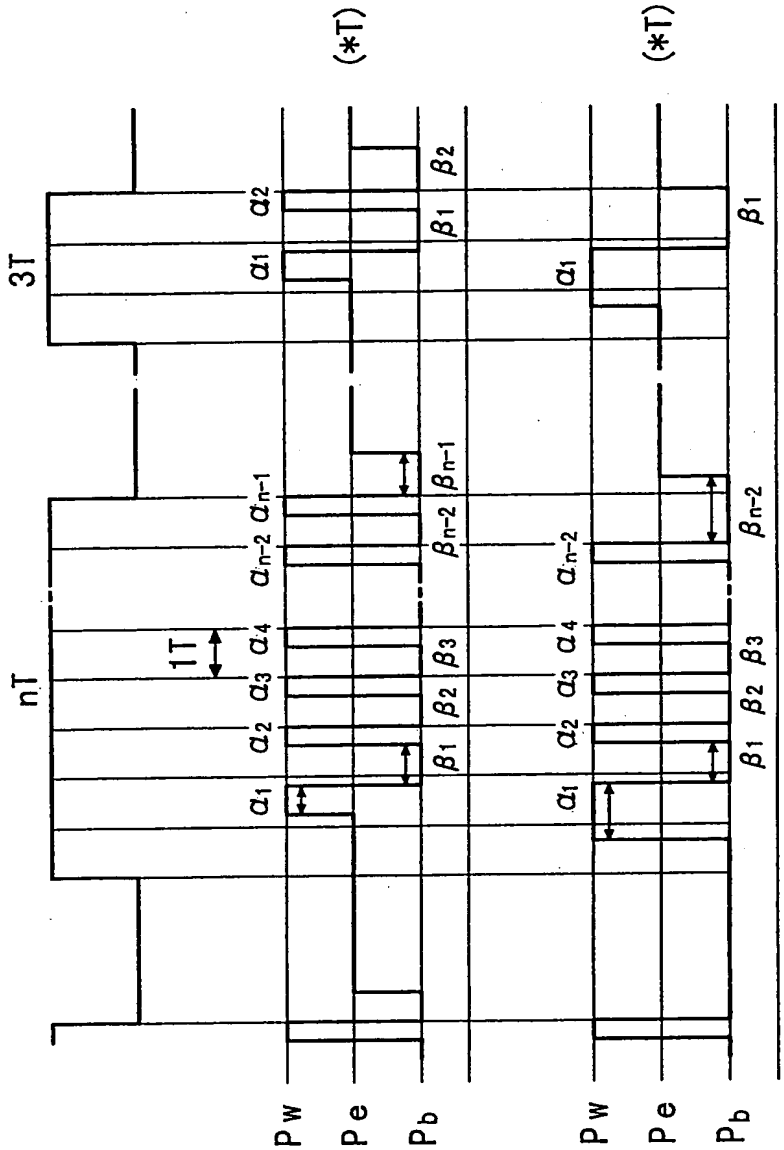


FIG. 1(b)

WHEN m=n-1

FIG. 1(c)

WHEN m=n-2

FIG. 2

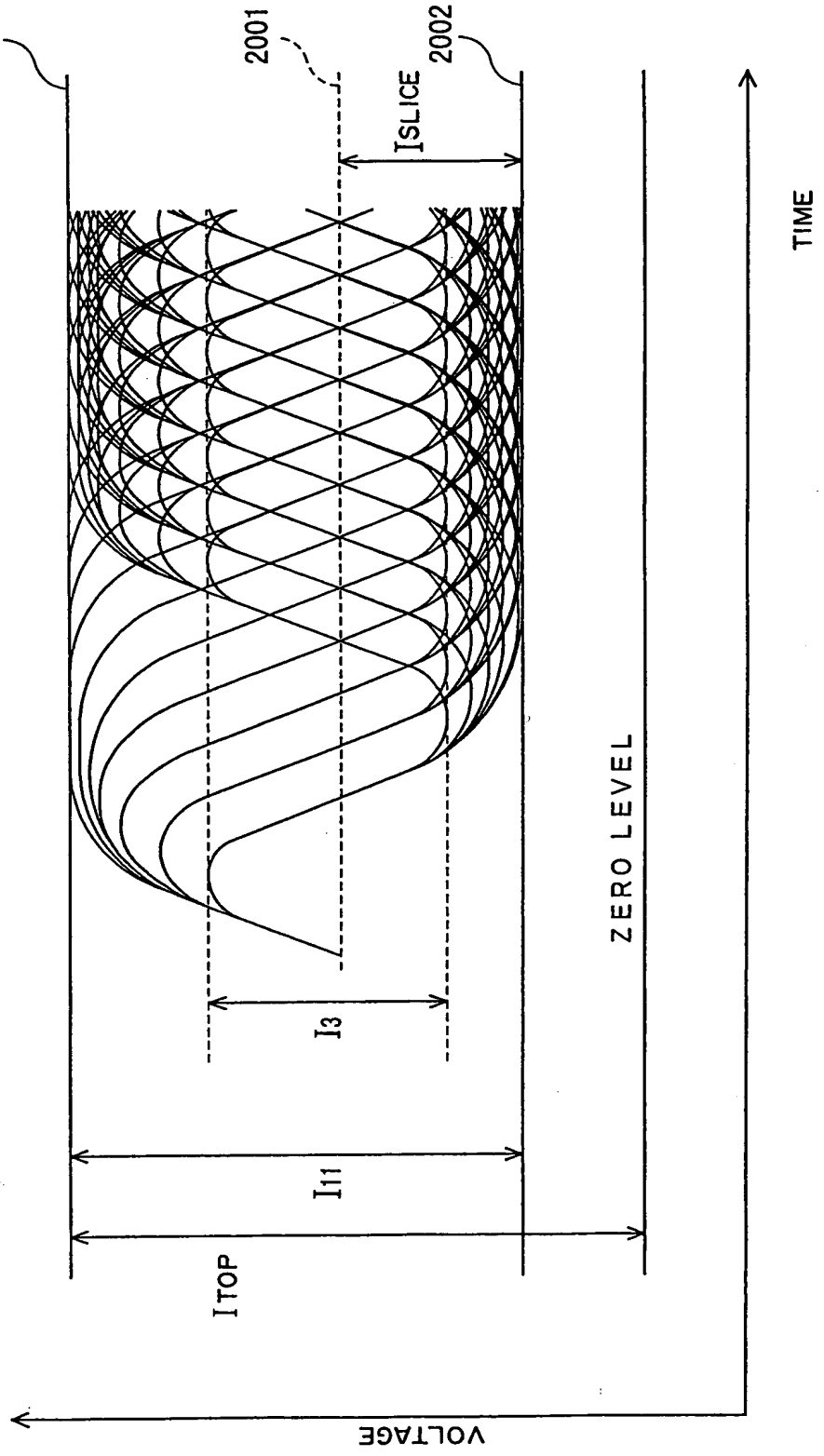


FIG. 3

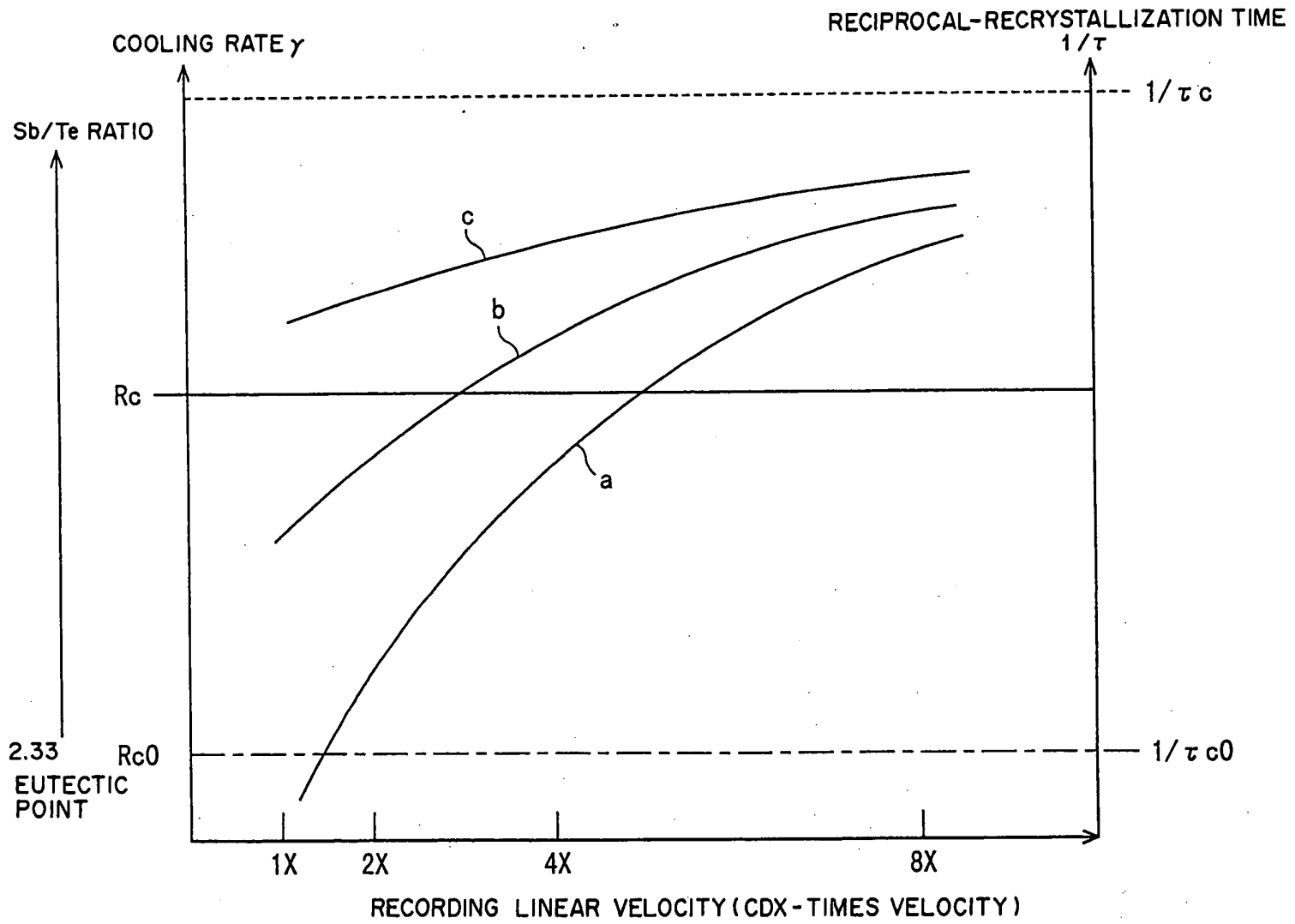

COOLING RATE γ
RECIPROCAL-RECRYSTALLIZATION TIME
1/τ
1/τc
Sb/Te RATIO
c
b
Rc
a
2.33
Rc0
1/τc0
EUTECTIC
POINT
1X
2X
4X
8X
RECORDING LINEAR VELOCITY (CDX-TIMES VELOCITY)

FIG. 4(a)

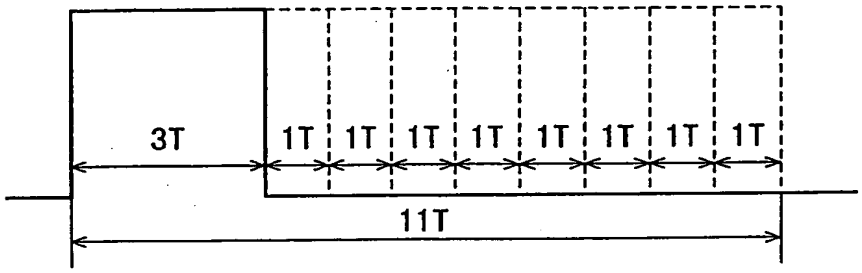

3T
1T
1T
1T
1T
1T
1T
1T
1T
11T

FIG. 4(b)

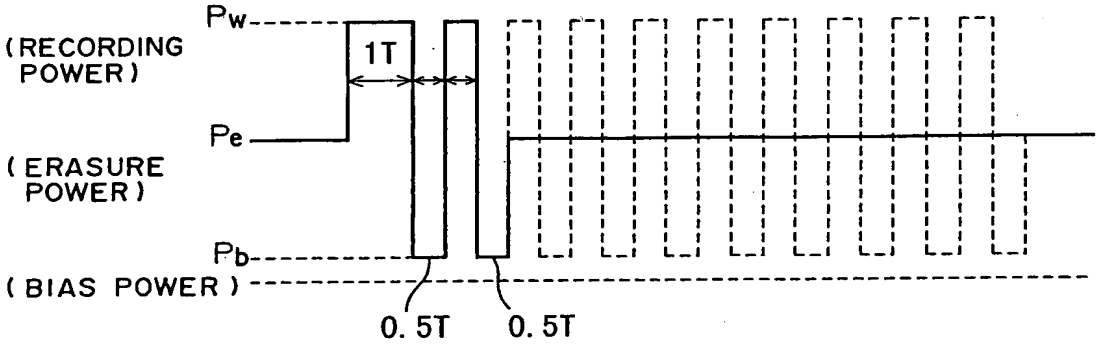

Pw
(RECORDING POWER)
1T
Pe
(ERASURE POWER)
Pb
(BIAS POWER)
0.5T
0.5T

FIG. 5(a) CLOCK SIGNAL

FIG. 5(b) DATA SIGNAL

FIG. 5(c) GATE 1

FIG. 5(d) GATE 2

FIG. 5(e) GATE 3

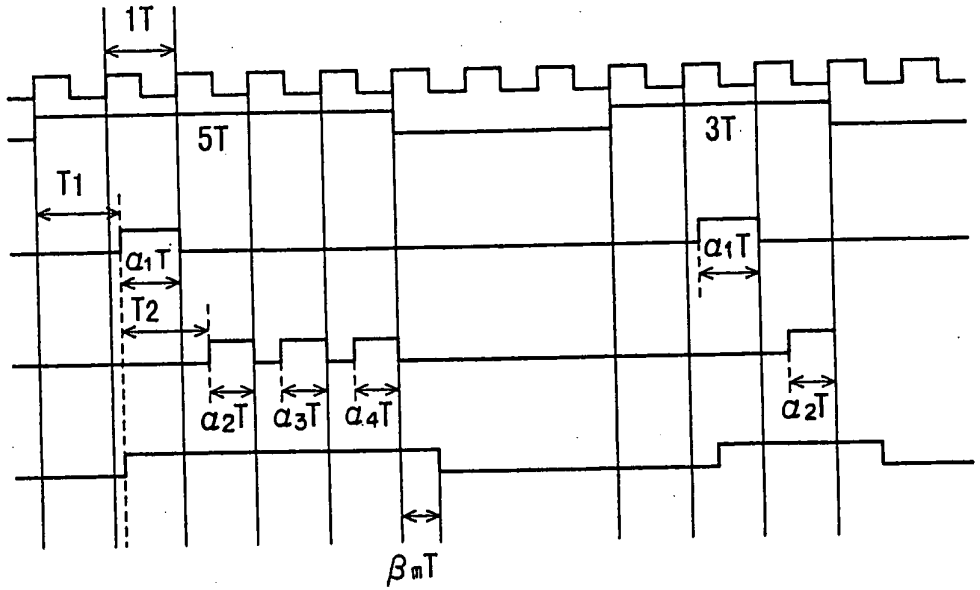


FIG. 6

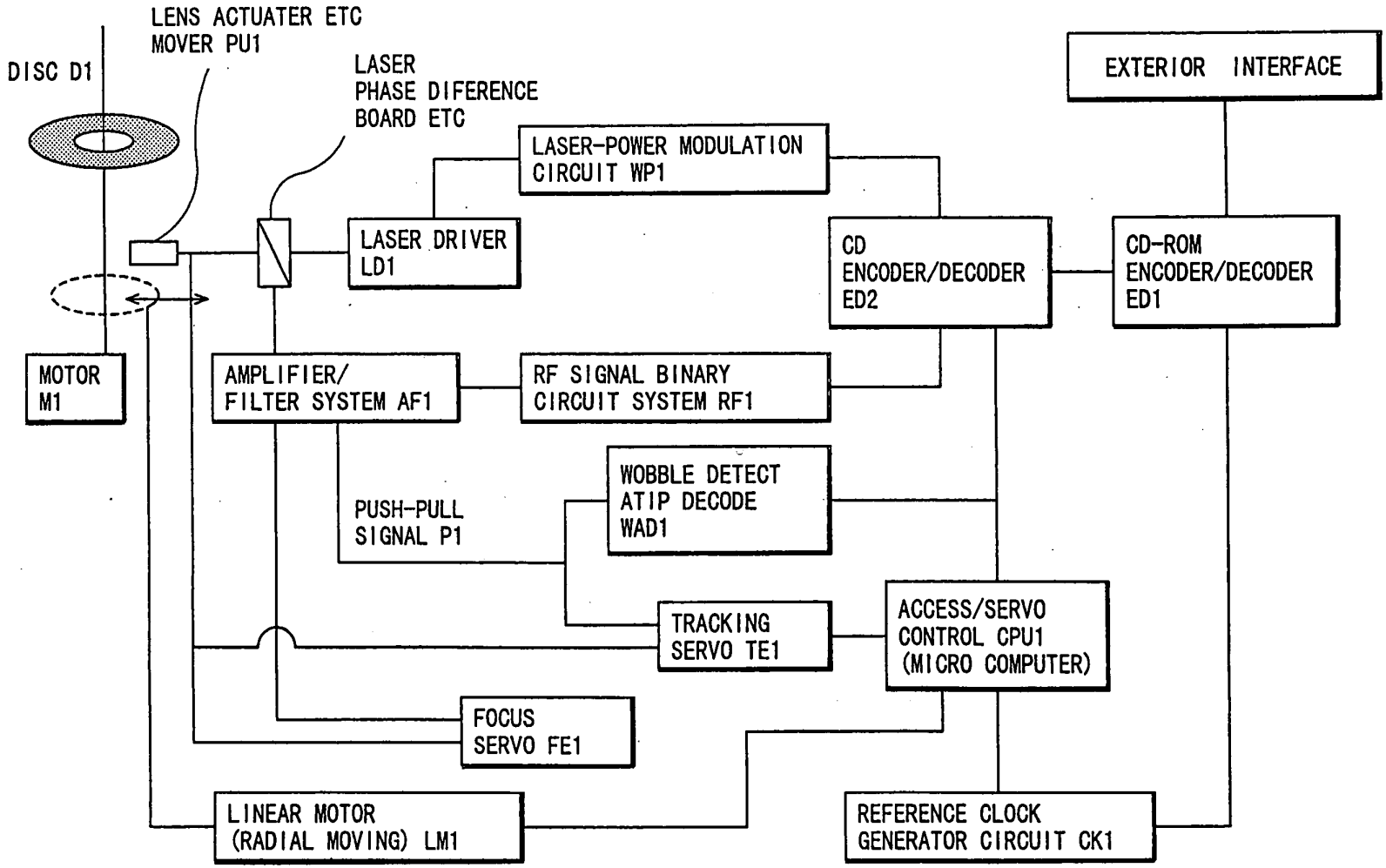

LENS ACTUATER ETC
MOVER PU1
DISC D1
LASER
PHASE DIFERENCE
BOARD ETC
EXTERIOR INTERFACE
LASER-POWER MODULATION
CIRCUIT WP1
LASER DRIVER
LD1
CD
ENCODER/DECODER
ED2
CD-ROM
ENCODER/DECODER
ED1
MOTOR
M1
AMPLIFIER/
FILTER SYSTEM AF1
RF SIGNAL BINARY
CIRCUIT SYSTEM RF1
WOBBLE DETECT
ATIP DECODE
WAD1
PUSH-PULL
SIGNAL P1
TRACKING
SERVO TE1
ACCESS/SERVO
CONTROL CPU1
(MICRO COMPUTER)
FOCUS
SERVO FE1
LINEAR MOTOR
(RADIAL MOVING) LM1
REFERENCE CLOCK
GENERATOR CIRCUIT CK1

FIG. 7(a)

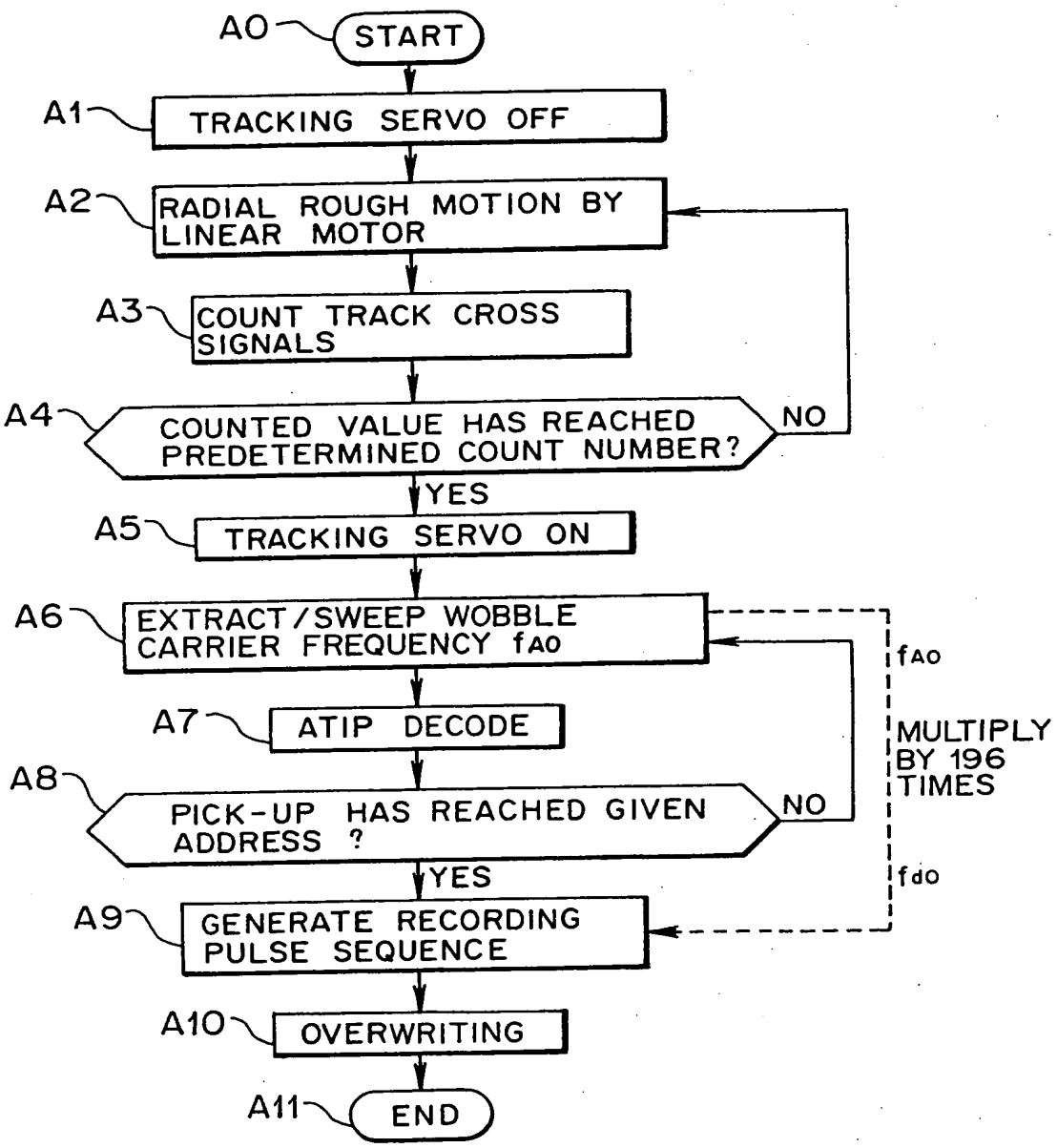

A0
START
A1
TRACKING SERVO OFF
A2
RADIAL ROUGH MOTION BY LINEAR MOTOR
A3
COUNT TRACK CROSS SIGNALS
A4
COUNTED VALUE HAS REACHED PREDETERMINED COUNT NUMBER?
NO
YES
A5
TRACKING SERVO ON
A6
EXTRACT/SWEEP WOBBLE CARRIER FREQUENCY fAO
A7
ATIP DECODE
A8
PICK-UP HAS REACHED GIVEN ADDRESS ?
NO
YES
A9
GENERATE RECORDING PULSE SEQUENCE
A10
OVERWRITING
A11
END
fAO
MULTIPLY BY 196 TIMES
fdo

FIG. 7(b)

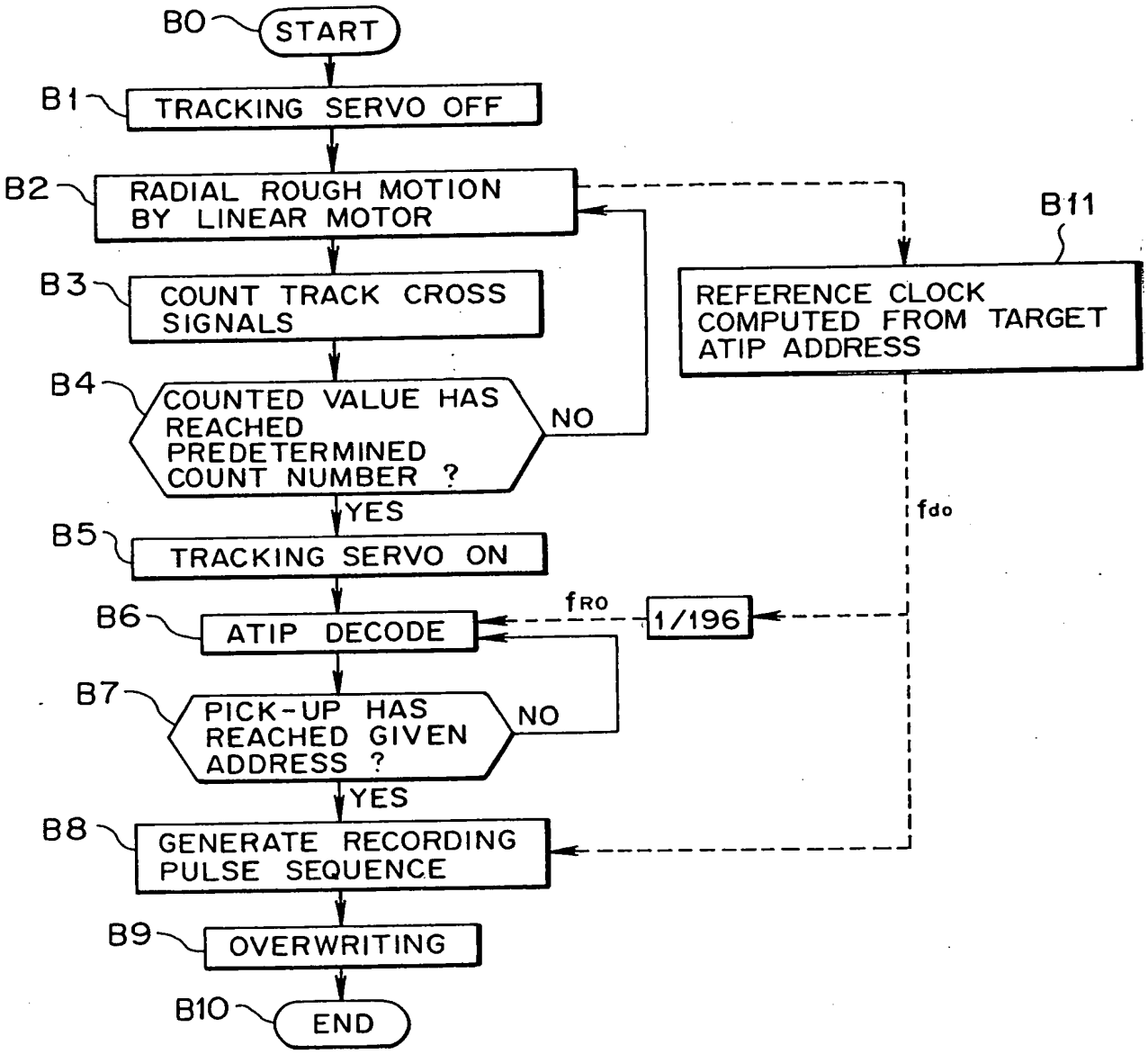

B0
START
B1
TRACKING SERVO OFF
B2
RADIAL ROUGH MOTION BY LINEAR MOTOR
B3
COUNT TRACK CROSS SIGNALS
B4
COUNTED VALUE HAS REACHED PREDETERMINED COUNT NUMBER ?
NO
YES
B5
TRACKING SERVO ON
B6
ATIP DECODE
B7
PICK-UP HAS REACHED GIVEN ADDRESS ?
NO
YES
B8
GENERATE RECORDING PULSE SEQUENCE
B9
OVERWRITING
B10
END
B11
REFERENCE CLOCK COMPUTED FROM TARGET ATIP ADDRESS
fdo
fRO
1/196

FIG.8

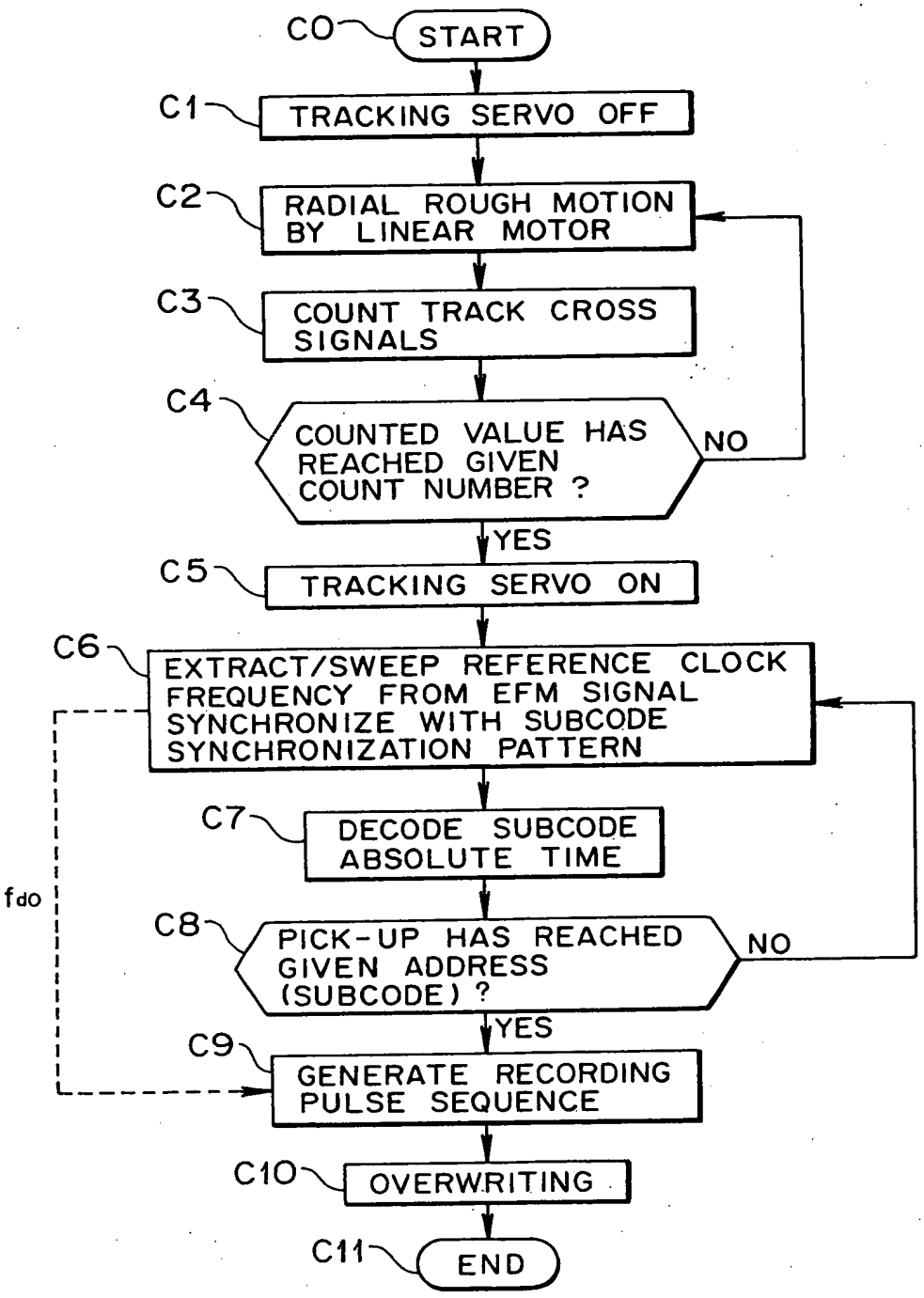

C0
START
C1
TRACKING SERVO OFF
C2
RADIAL ROUGH MOTION BY LINEAR MOTOR
C3
COUNT TRACK CROSS SIGNALS
C4
COUNTED VALUE HAS REACHED GIVEN COUNT NUMBER ?
NO
YES
C5
TRACKING SERVO ON
C6
EXTRACT/SWEEP REFERENCE CLOCK FREQUENCY FROM EFM SIGNAL SYNCHRONIZE WITH SUBCODE SYNCHRONIZATION PATTERN
C7
DECODE SUBCODE ABSOLUTE TIME
fdo
C8
PICK-UP HAS REACHED GIVEN ADDRESS (SUBCODE) ?
NO
YES
C9
GENERATE RECORDING PULSE SEQUENCE
C10
OVERWRITING
C11
END

FIG.9

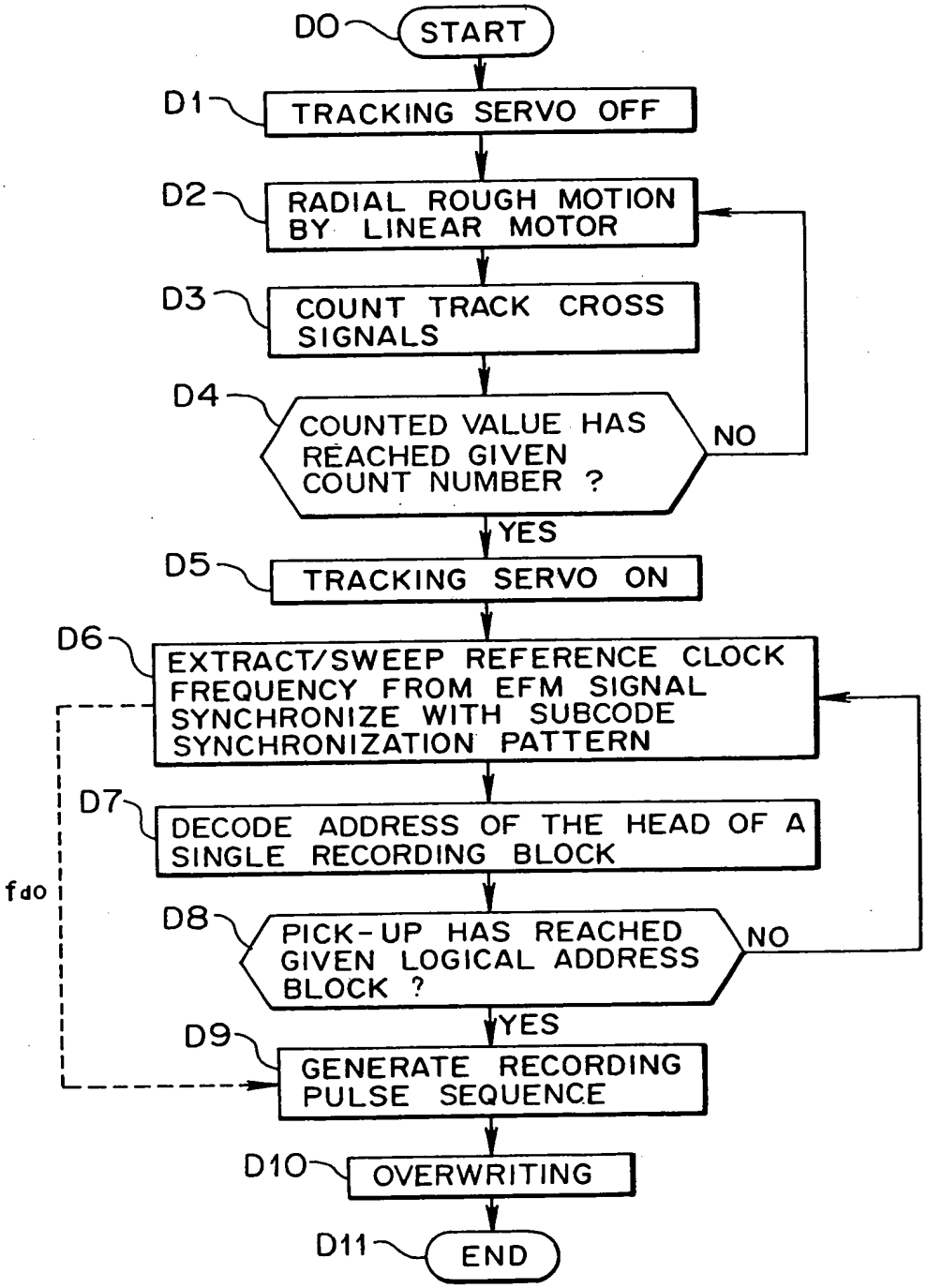

D0
START
D1
TRACKING SERVO OFF
D2
RADIAL ROUGH MOTION BY LINEAR MOTOR
D3
COUNT TRACK CROSS SIGNALS
D4
COUNTED VALUE HAS REACHED GIVEN COUNT NUMBER ?
NO
YES
D5
TRACKING SERVO ON
D6
EXTRACT/SWEEP REFERENCE CLOCK FREQUENCY FROM EFM SIGNAL SYNCHRONIZE WITH SUBCODE SYNCHRONIZATION PATTERN
D7
DECODE ADDRESS OF THE HEAD OF A SINGLE RECORDING BLOCK
fdo
D8
PICK-UP HAS REACHED GIVEN LOGICAL ADDRESS BLOCK ?
NO
YES
D9
GENERATE RECORDING PULSE SEQUENCE
D10
OVERWRITING
D11
END

FIG.10

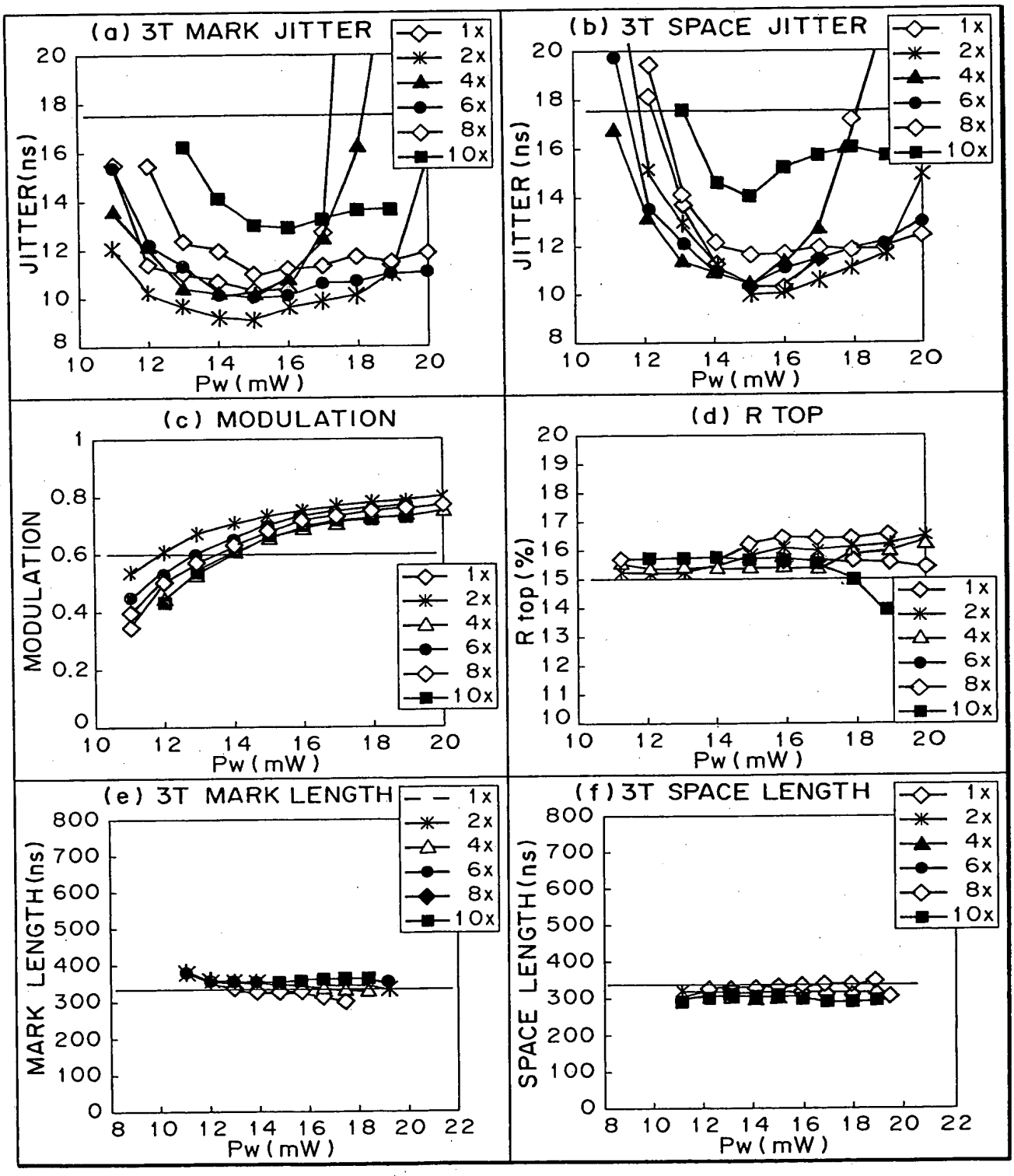

(a) 3T MARK JITTER
JITTER(ns)
Pw(mW)
1x
2x
4x
6x
8x
10x
(b) 3T SPACE JITTER
JITTER(ns)
Pw(mW)
(c) MODULATION
MODULATION
Pw(mW)
(d) R TOP
R top(%)
Pw(mW)
(e) 3T MARK LENGTH
MARK LENGTH(ns)
Pw(mW)
(f) 3T SPACE LENGTH
SPACE LENGTH(ns)
Pw(mW)

FIG. 11(a)

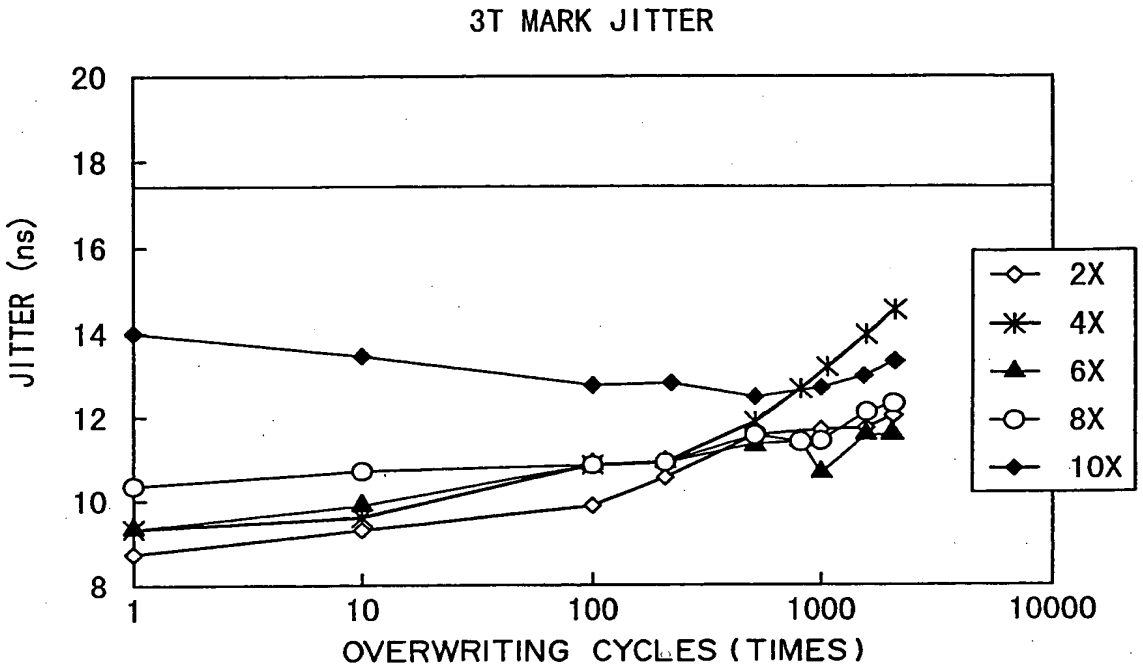


FIG. 11(b)

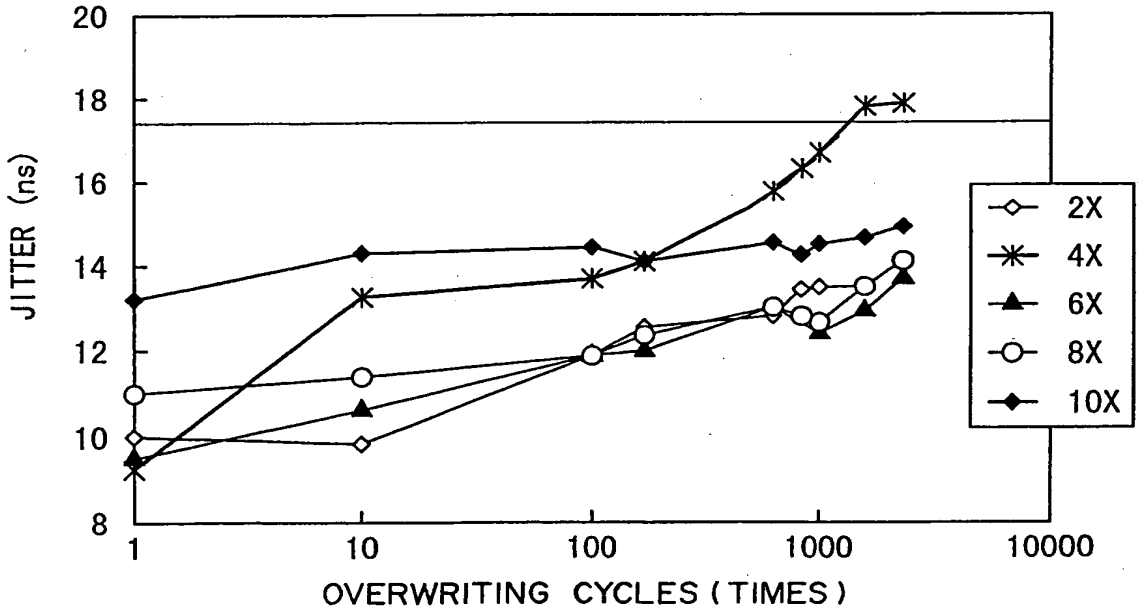
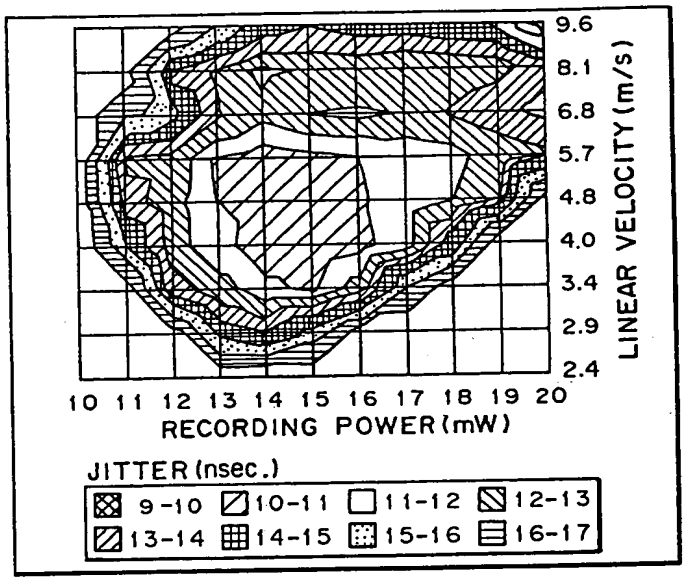
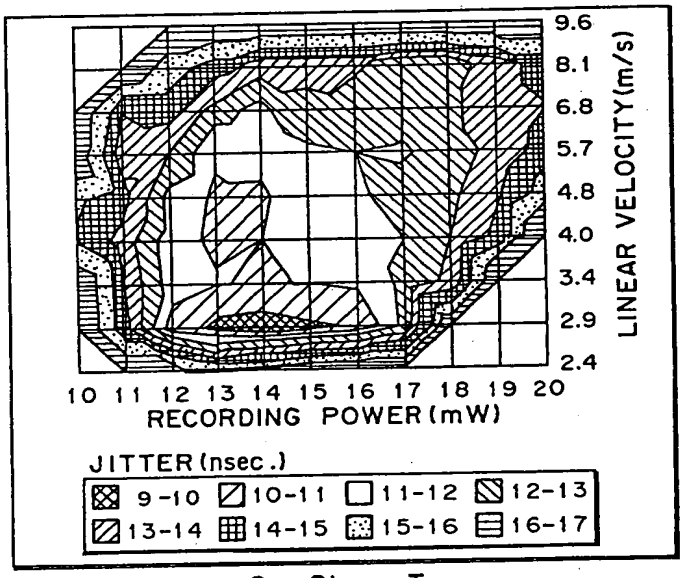


FIG.12(a)



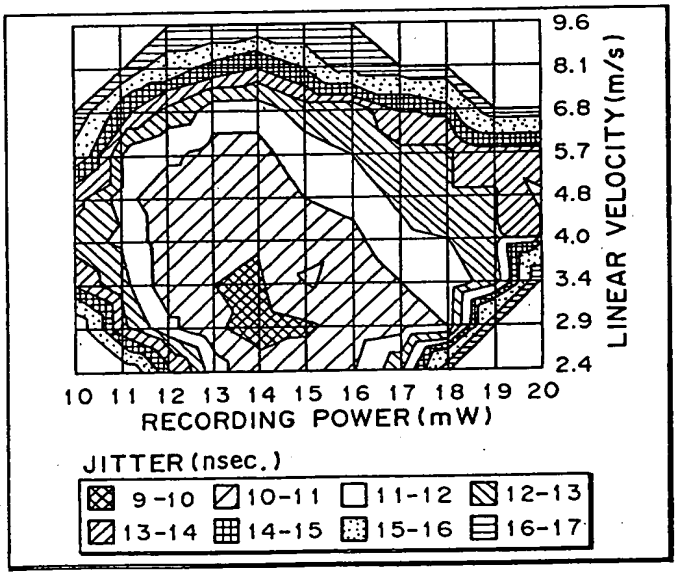
$In_8Ge_5Sb_{66.4}Te_{20.6}$

FIG.12(b)



$In_8Ge_5Sb_{65.6}Te_{21.4}$

FIG.12(c)



$In_8Ge_5Sb_{64.7}Te_{22.3}$

FIG. 13

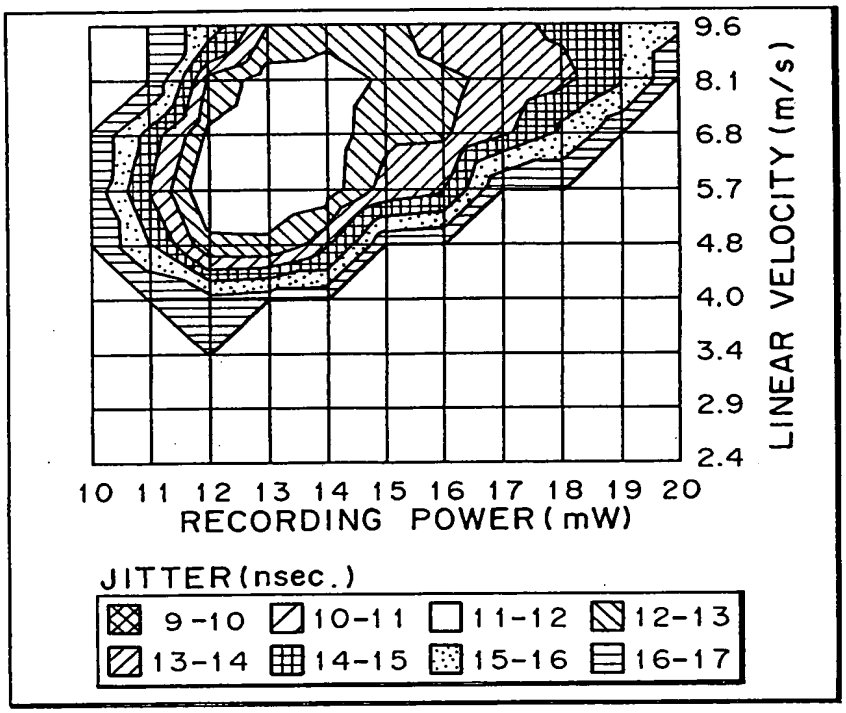

9.6
8.1
6.8
5.7
4.8
4.0
3.4
2.9
2.4
LINEAR VELOCITY (m/s)
10 11 12 13 14 15 16 17 18 19 20
RECORDING POWER (mW)
JITTER (nsec.)
9-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17

FIG. 14

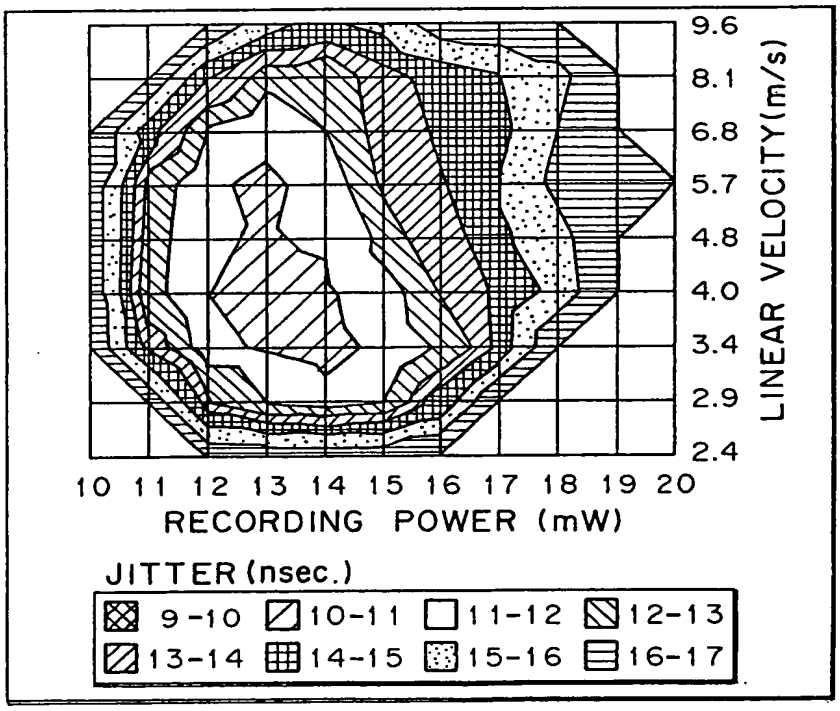

9.6
8.1
6.8
5.7
4.8
4.0
3.4
2.9
2.4
LINEAR VELOCITY (m/s)
10 11 12 13 14 15 16 17 18 19 20
RECORDING POWER (mW)
JITTER (nsec.)
9-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17

FIG. 15

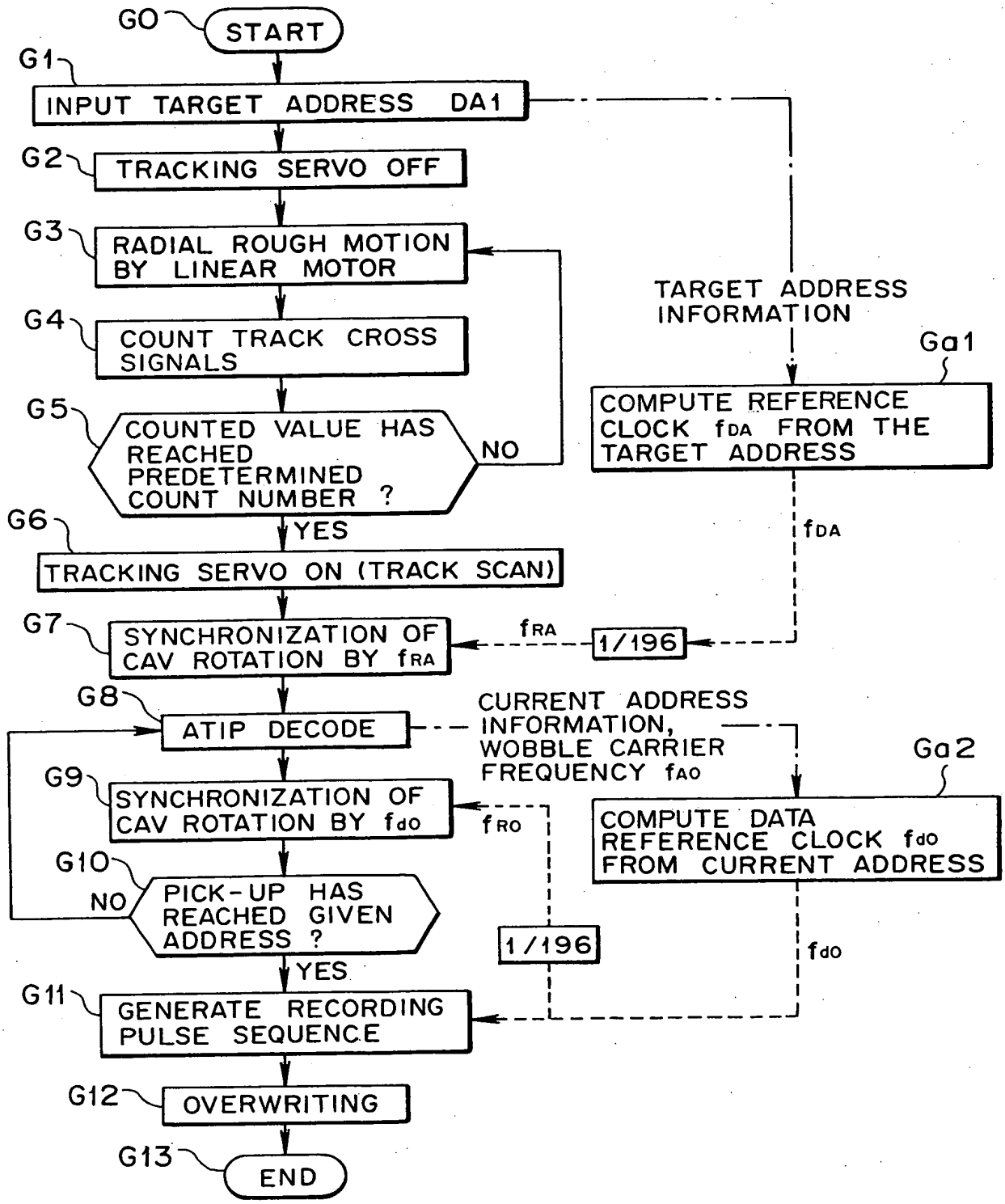

G0
START
G1
INPUT TARGET ADDRESS DA1
G2
TRACKING SERVO OFF
G3
RADIAL ROUGH MOTION BY LINEAR MOTOR
G4
COUNT TRACK CROSS SIGNALS
G5
COUNTED VALUE HAS REACHED PREDETERMINED COUNT NUMBER ?
NO
YES
G6
TRACKING SERVO ON (TRACK SCAN)
G7
SYNCHRONIZATION OF CAV ROTATION BY fRA
G8
ATIP DECODE
G9
SYNCHRONIZATION OF CAV ROTATION BY fdO
G10
NO
PICK-UP HAS REACHED GIVEN ADDRESS ?
YES
G11
GENERATE RECORDING PULSE SEQUENCE
G12
OVERWRITING
G13
END
TARGET ADDRESS INFORMATION
Ga1
COMPUTE REFERENCE CLOCK fDA FROM THE TARGET ADDRESS
fDA
fRA
1/196
CURRENT ADDRESS INFORMATION, WOBBLE CARRIER FREQUENCY fAO
Ga2
COMPUTE DATA REFERENCE CLOCK fdO FROM CURRENT ADDRESS
fRO
1/196
fdO

FIG. 16

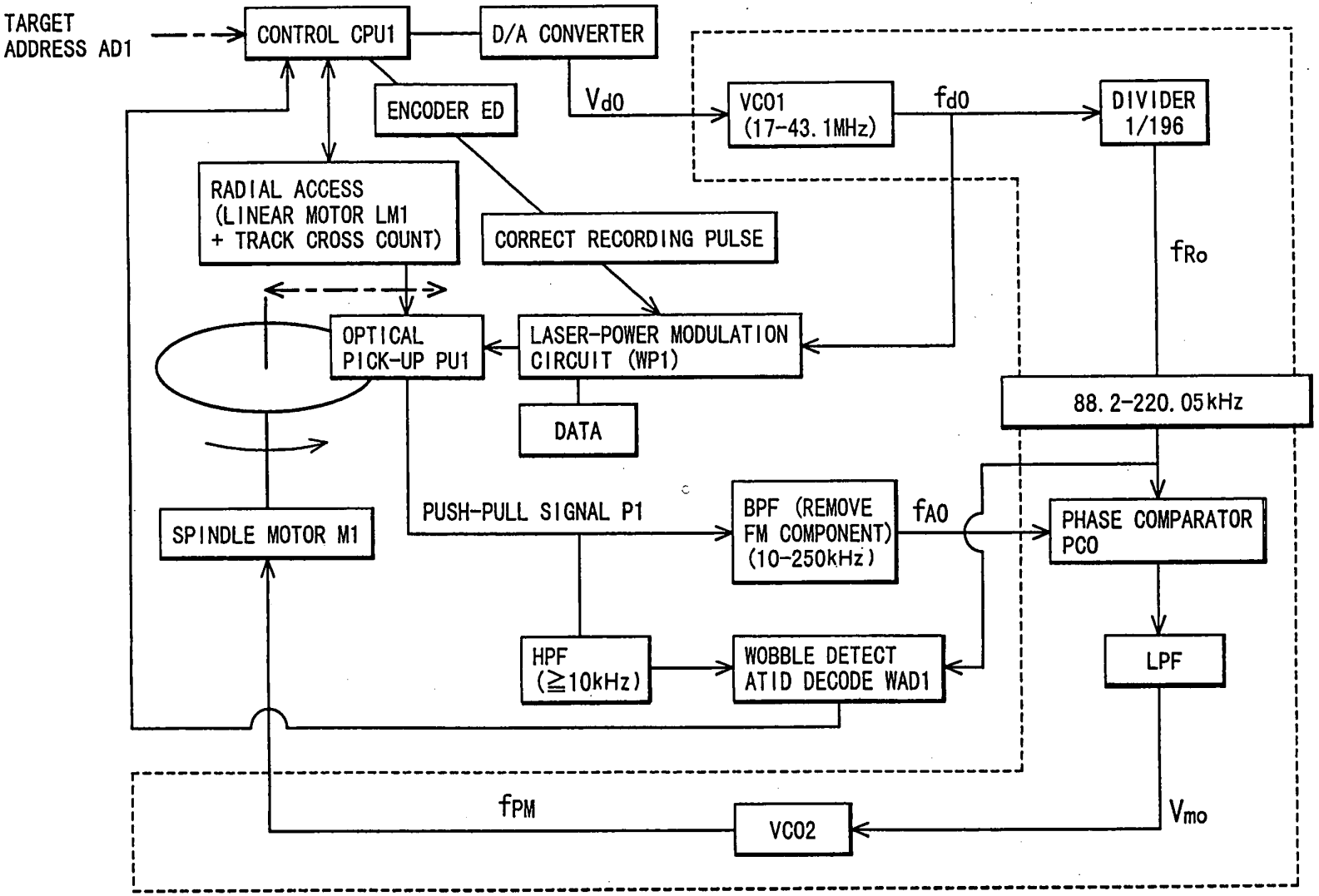
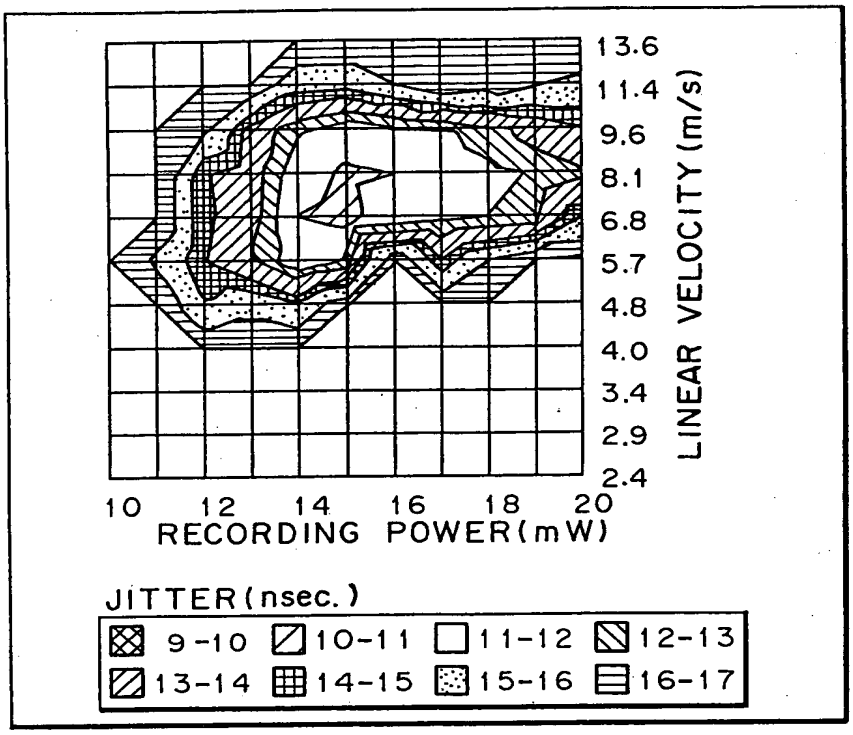
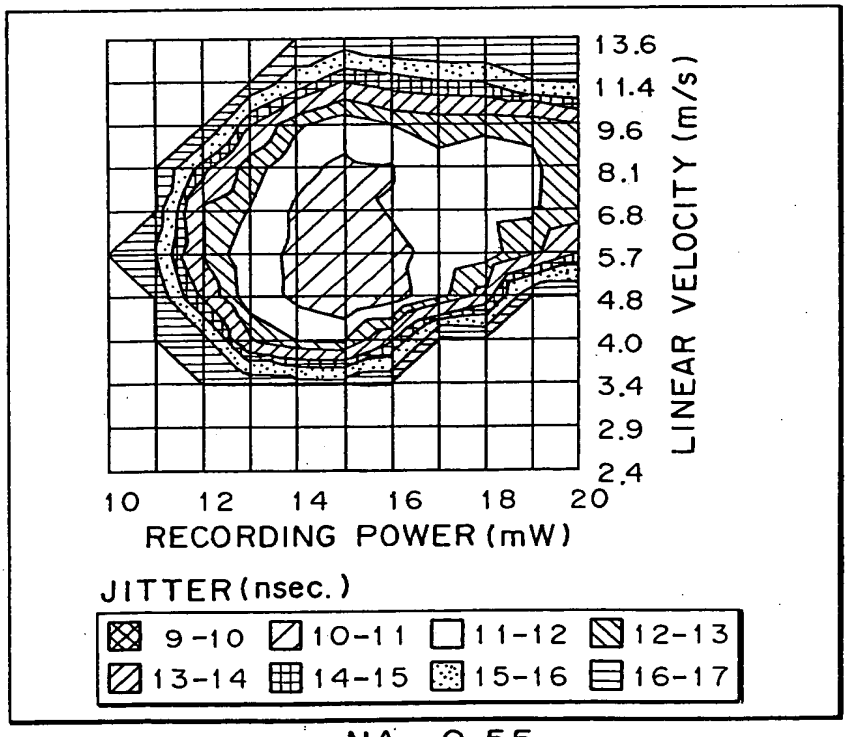

TARGET
ADDRESS AD1
CONTROL CPU1
D/A CONVERTER
ENCODER ED
Vd0
VCO1
(17-43.1MHz)
fd0
DIVIDER
1/196
RADIAL ACCESS
(LINEAR MOTOR LM1
+ TRACK CROSS COUNT)
CORRECT RECORDING PULSE
fRo
OPTICAL
PICK-UP PU1
LASER-POWER MODULATION
CIRCUIT (WP1)
88.2-220.05kHz
DATA
SPINDLE MOTOR M1
PUSH-PULL SIGNAL P1
BPF (REMOVE
FM COMPONENT)
(10-250kHz)
fA0
PHASE COMPARATOR
PCO
HPF
(≧10kHz)
WOBBLE DETECT
ATID DECODE WAD1
LPF
fPM
VCO2
Vmo

FIG.17(a)



NA=0.5

FIG.17(b)



NA = 0.55

FIG. 18

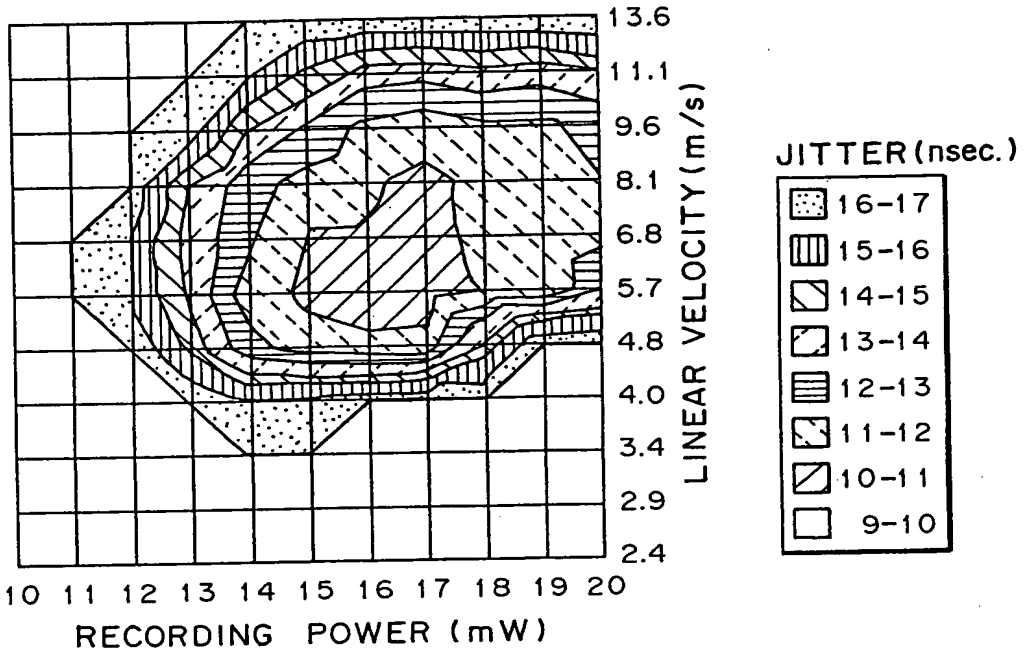

13.6
11.1
9.6
8.1
6.8
5.7
4.8
4.0
3.4
2.9
2.4
LINEAR VELOCITY (m/s)
10 11 12 13 14 15 16 17 18 19 20
RECORDING POWER (mW)
JITTER (nsec.)
16-17
15-16
14-15
13-14
12-13
11-12
10-11
9-10

FIG. 19

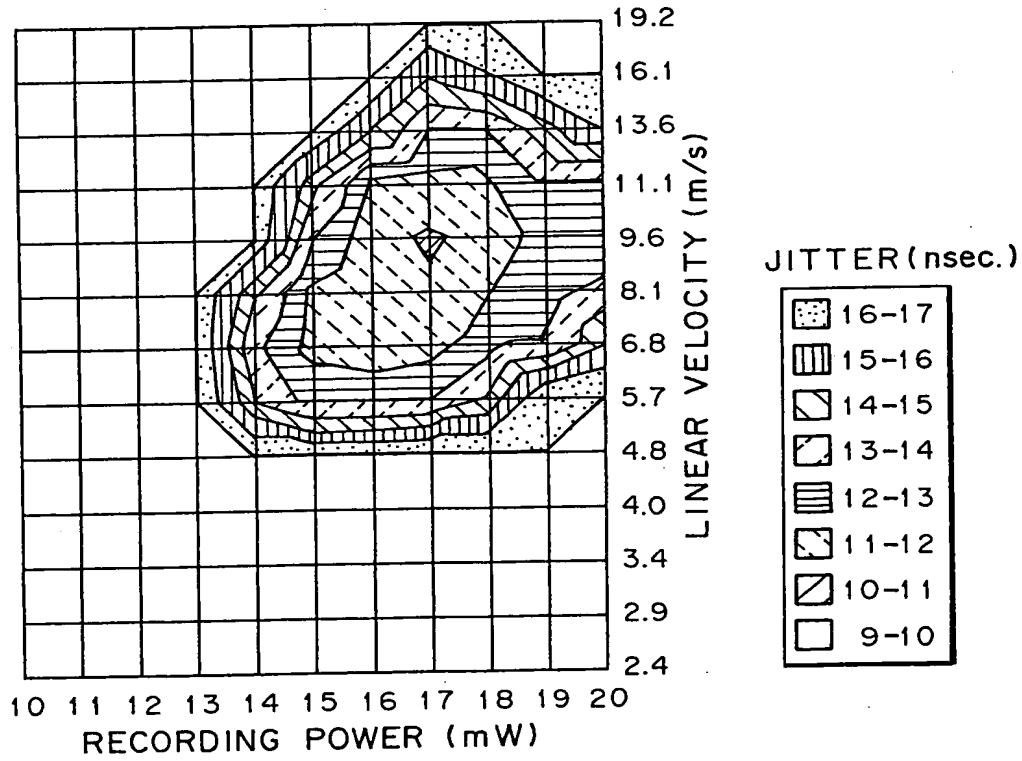

19.2
16.1
13.6
11.1
9.6
8.1
6.8
5.7
4.8
4.0
3.4
2.9
2.4
LINEAR VELOCITY (m/s)
10 11 12 13 14 15 16 17 18 19 20
RECORDING POWER (mW)
JITTER (nsec.)
16-17
15-16
14-15
13-14
12-13
11-12
10-11
9-10

FIG. 20

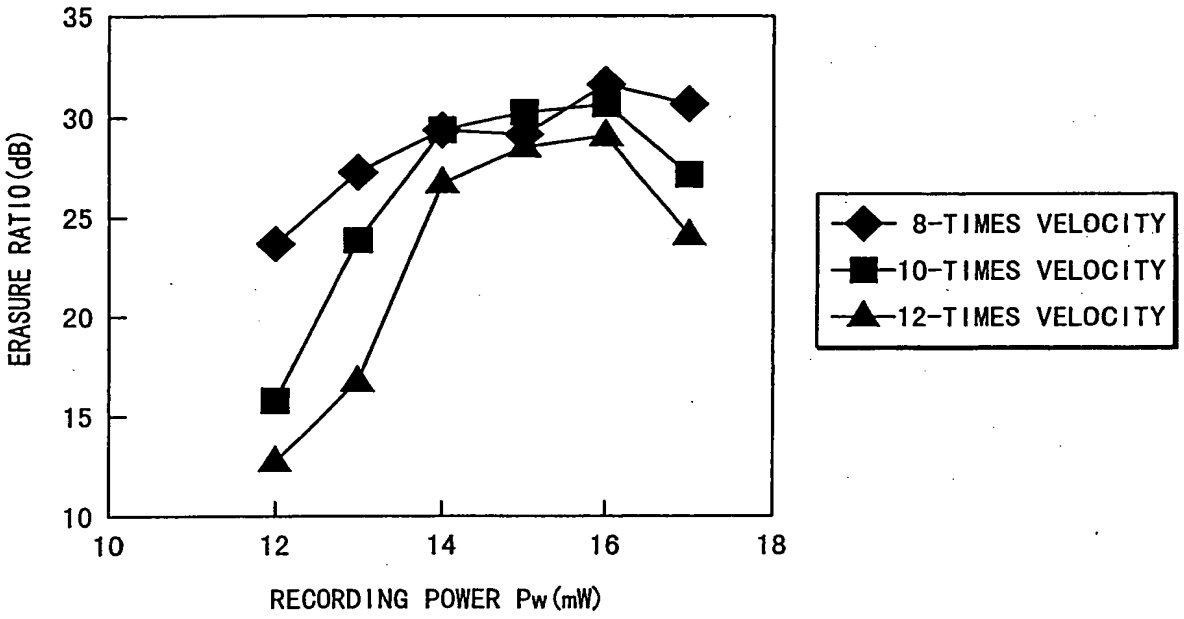
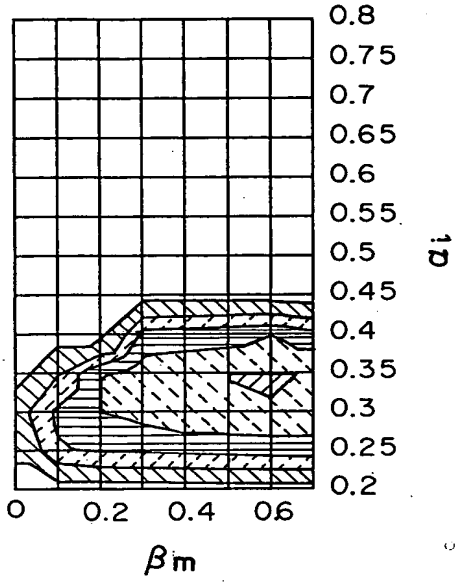

35
30
25
20
15
10
ERASURE RATIO(dB)
10
12
14
16
18
RECORDING POWER Pw(mW)
8-TIMES VELOCITY
10-TIMES VELOCITY
12-TIMES VELOCITY

FIG.21(a)

4-TIMES VELOCITY



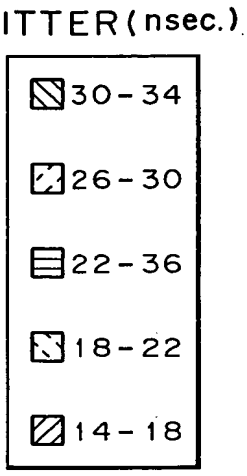
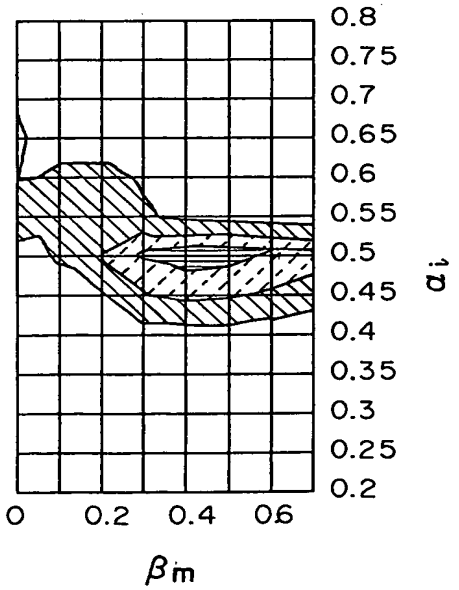


FIG.21(b)

10-TIMES VELOCITY



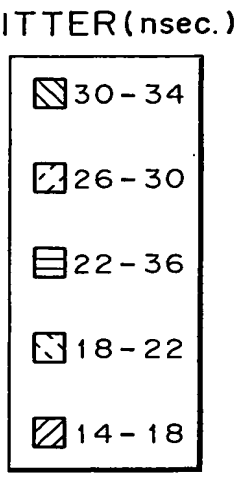


FIG. 22(a)

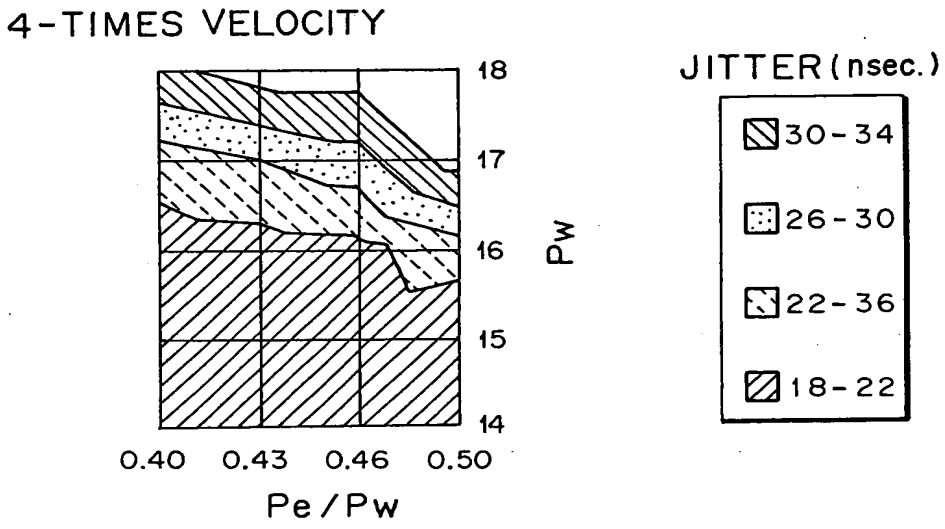


FIG. 22(b)

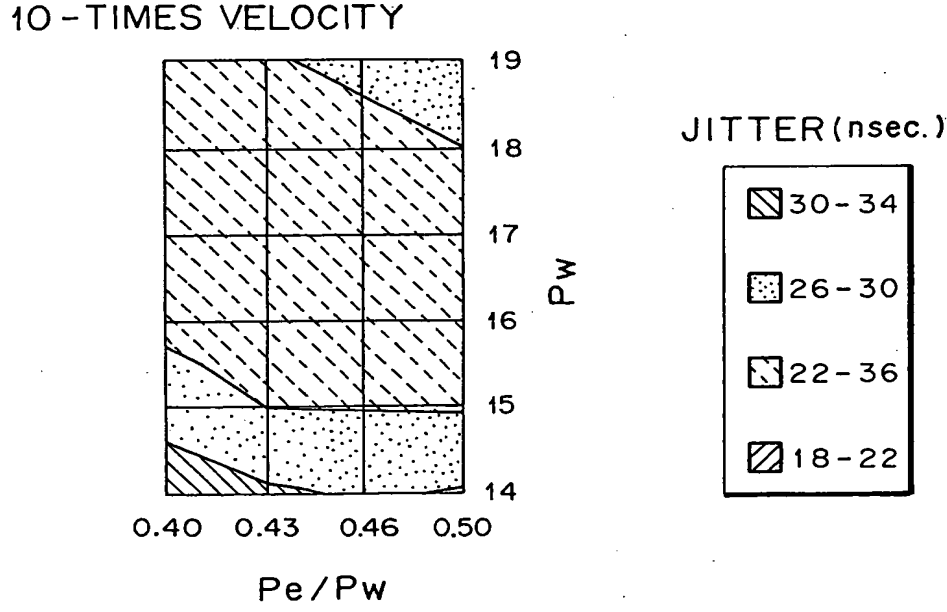


FIG.23(a)

4-TIMES VELOCITY

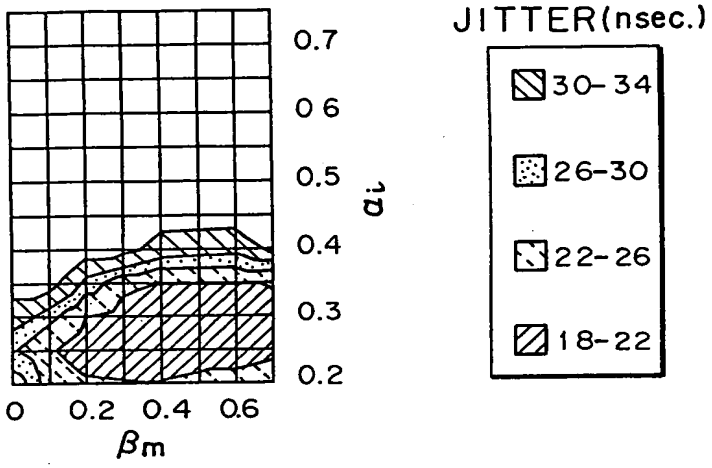


FIG.23(b)

8-TIMES VELOCITY

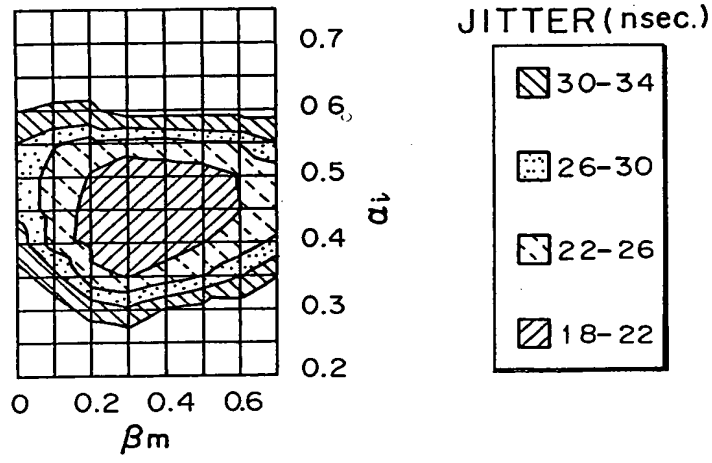


FIG.23(c)

10-TIMES VELOCITY

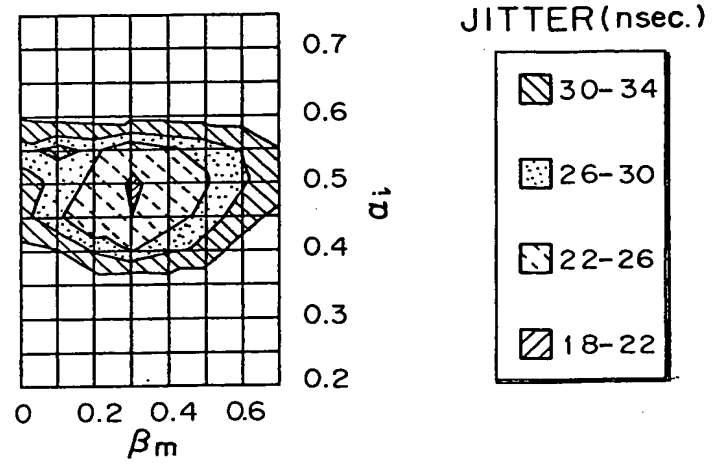


FIG. 24(a)

4-TIMES VELOCITY

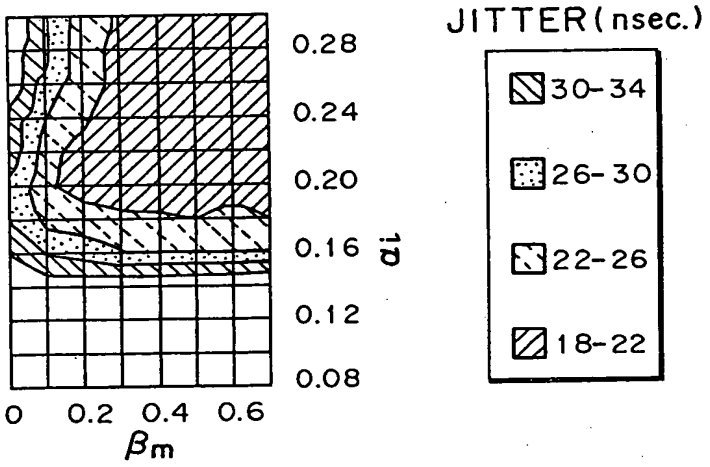


FIG. 24(b)

8-TIMES VELOCITY

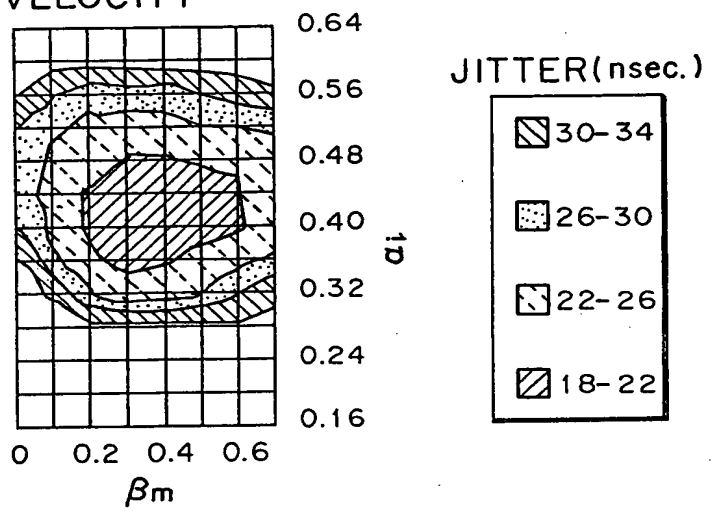


FIG. 24(c)

10-TIMES VELOCITY

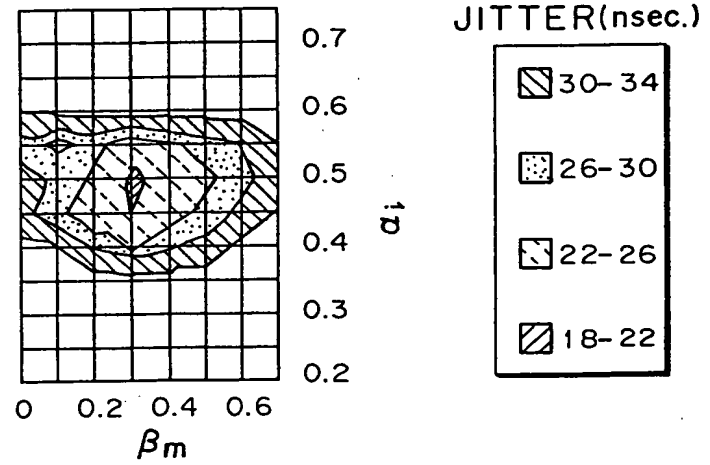


FIG. 25

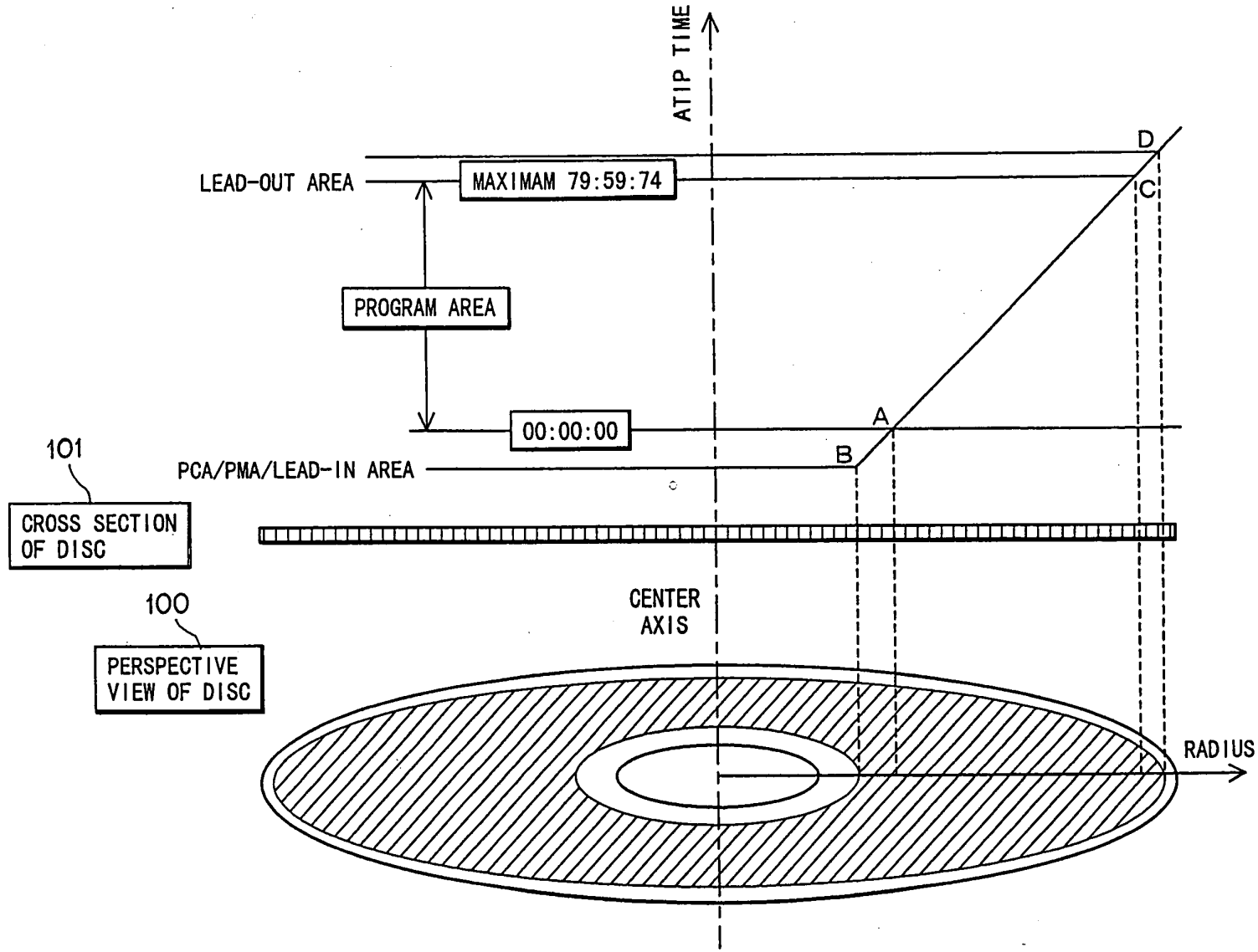

ATIP TIME
LEAD-OUT AREA
MAXIMAM 79:59:74
D
C
PROGRAM AREA
00:00:00
A
B
101
PCA/PMA/LEAD-IN AREA
CROSS SECTION OF DISC
100
CENTER AXIS
PERSPECTIVE VIEW OF DISC
RADIUS

FIG. 26(a)

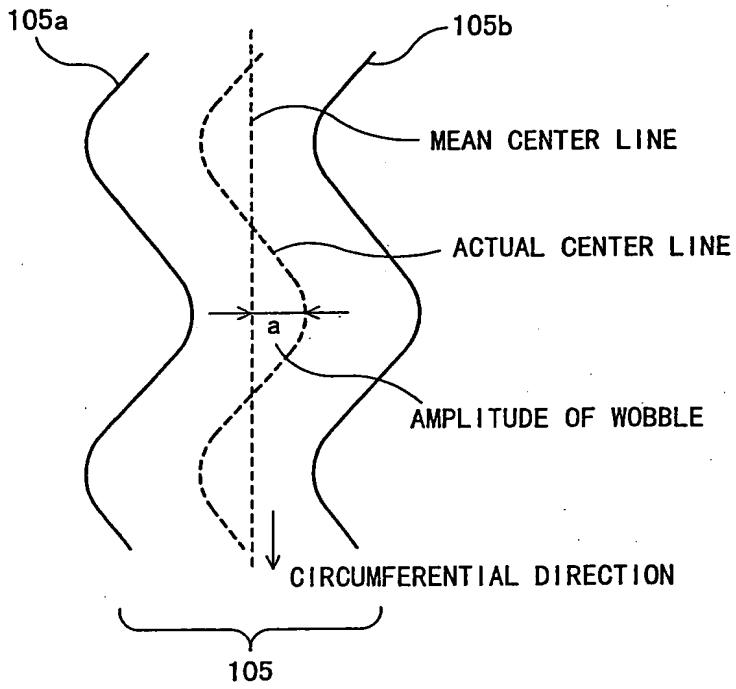


FIG. 26(b)

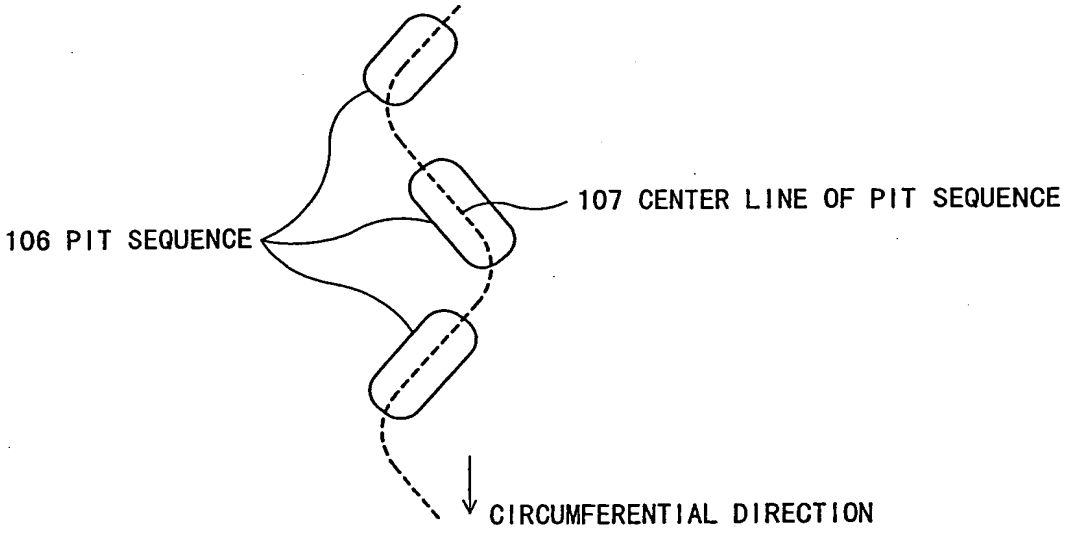


FIG. 27

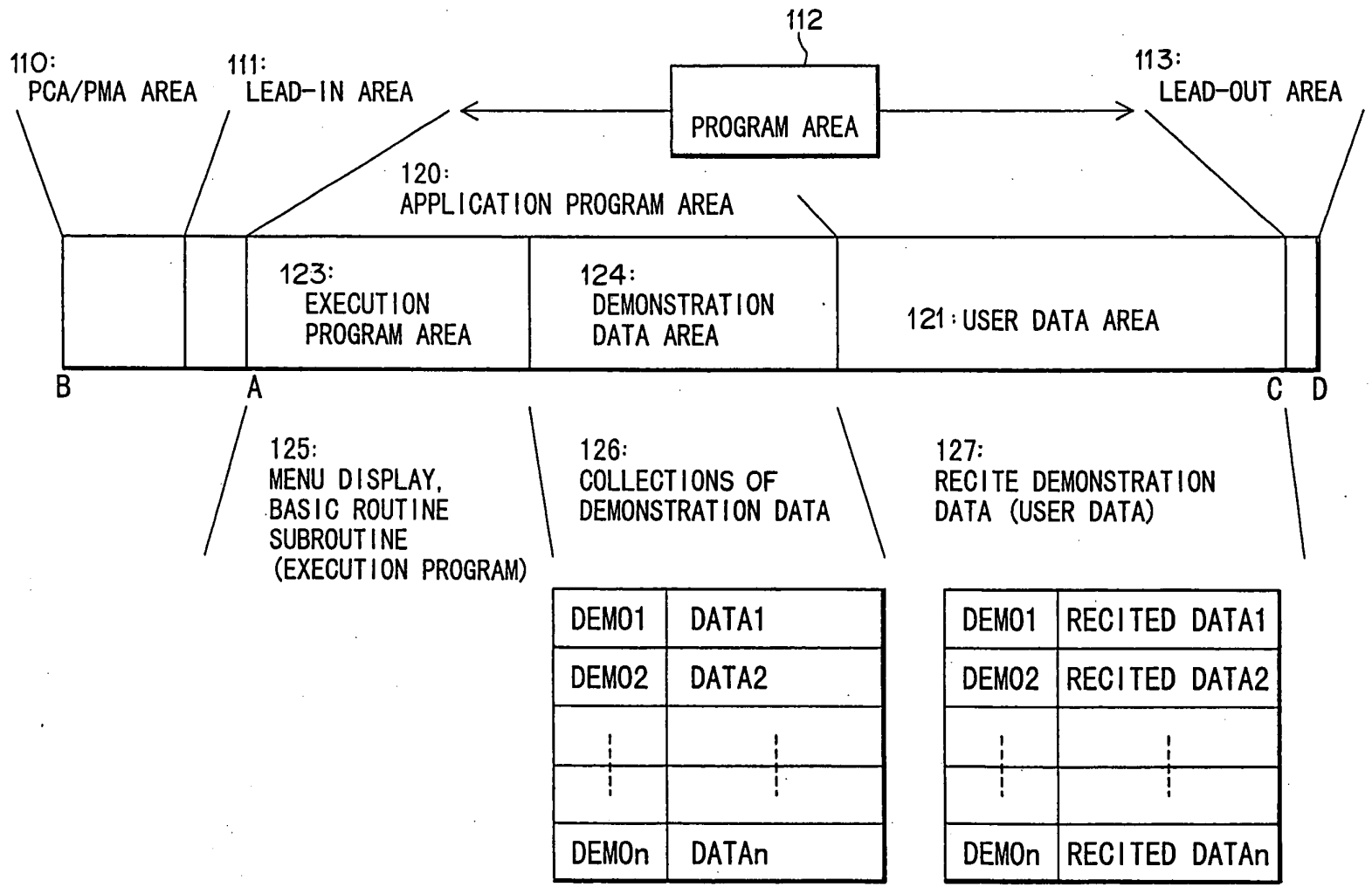

112
110:
PCA/PMA AREA
111:
LEAD-IN AREA
PROGRAM AREA
113:
LEAD-OUT AREA
120:
APPLICATION PROGRAM AREA
123:
EXECUTION
PROGRAM AREA
124:
DEMONSTRATION
DATA AREA
121:USER DATA AREA
B
A
C
D
125:
MENU DISPLAY,
BASIC ROUTINE
SUBROUTINE
(EXECUTION PROGRAM)
126:
COLLECTIONS OF
DEMONSTRATION DATA
127:
RECITE DEMONSTRATION
DATA (USER DATA)
DEMO1
DATA1
DEMO2
DATA2
DEMOn
DATAn
DEMO1
RECITED DATA1
DEMO2
RECITED DATA2
DEMOn
RECITED DATAn

FIG. 28

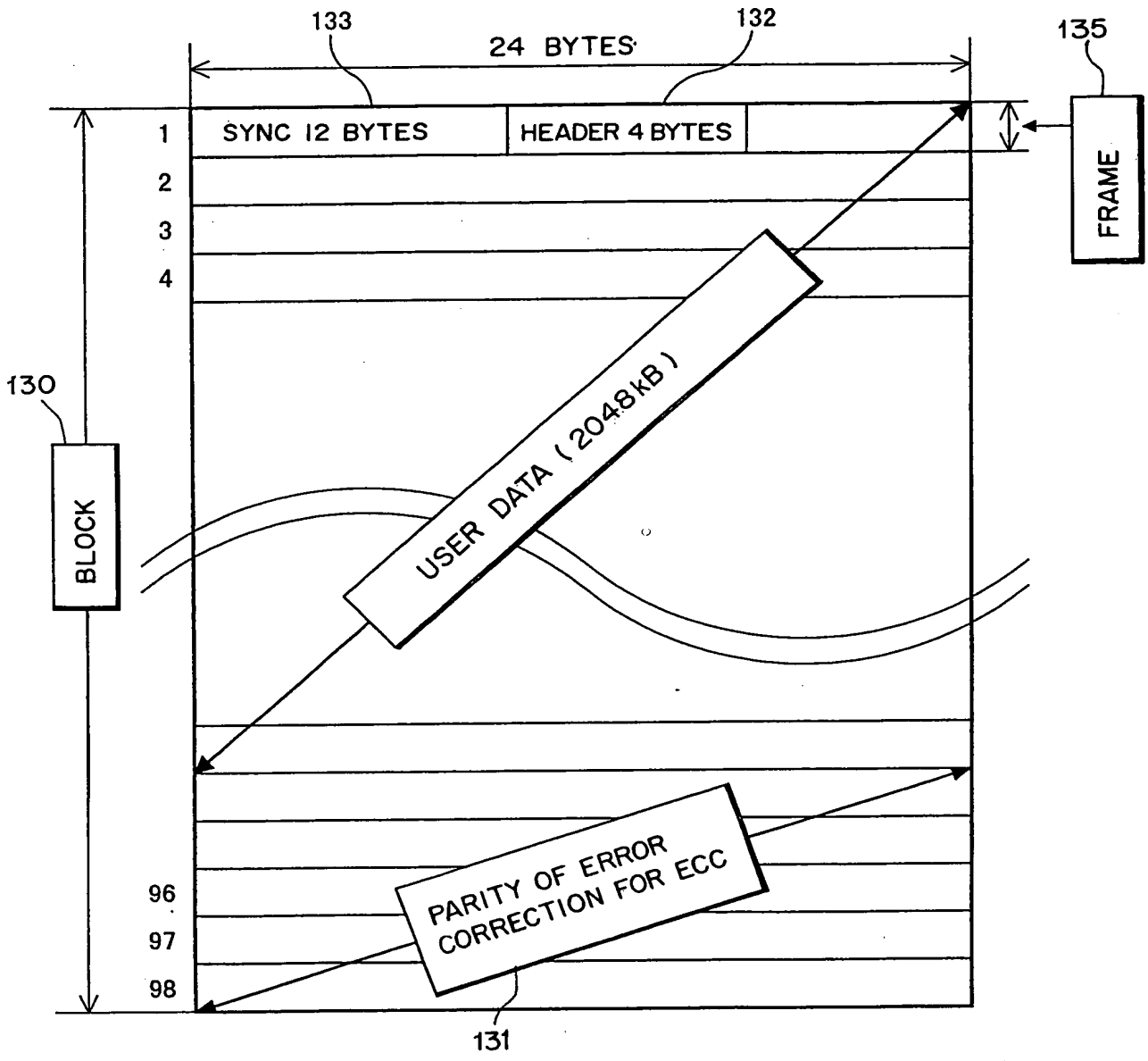

133
24 BYTES
132
135
1
SYNC 12 BYTES
HEADER 4 BYTES
2
3
4
FRAME
130
BLOCK
USER DATA (2048kB)
PARITY OF ERROR CORRECTION FOR ECC
96
97
98
131

FIG. 29

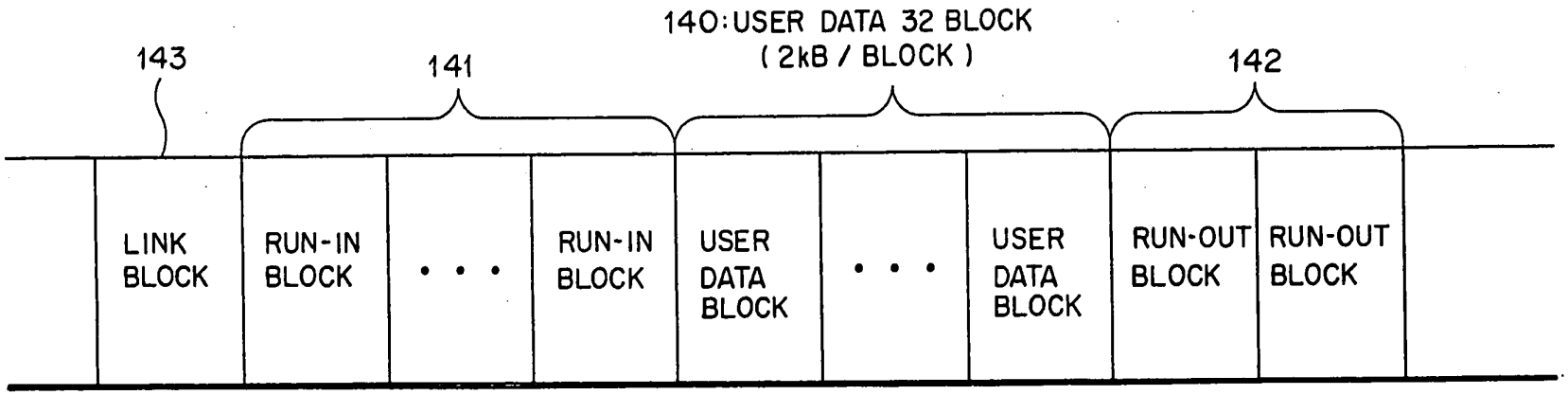

140:USER DATA 32 BLOCK
(2kB / BLOCK)
143
141
142
LINK BLOCK
RUN-IN BLOCK
• • •
RUN-IN BLOCK
USER DATA BLOCK
• • •
USER DATA BLOCK
RUN-OUT BLOCK
RUN-OUT BLOCK

FIG. 30

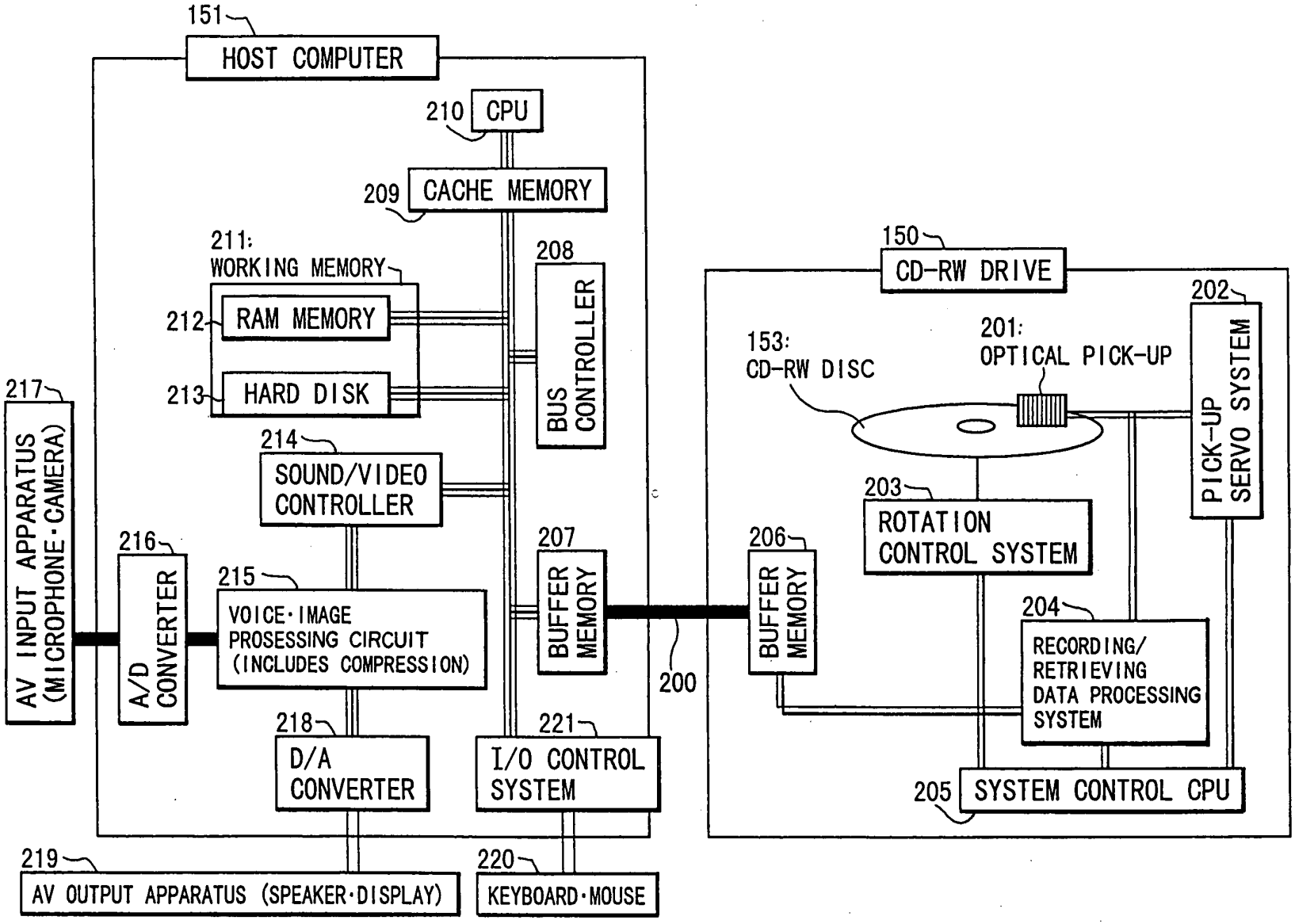

151
HOST COMPUTER
210
CPU
209
CACHE MEMORY
211:
WORKING MEMORY
212
RAM MEMORY
213
HARD DISK
208
BUS CONTROLLER
214
SOUND/VIDEO CONTROLLER
217
AV INPUT APPARATUS (MICROPHONE·CAMERA)
216
A/D CONVERTER
215
VOICE·IMAGE PROSESSING CIRCUIT (INCLUDES COMPRESSION)
207
BUFFER MEMORY
218
D/A CONVERTER
221
I/O CONTROL SYSTEM
219
AV OUTPUT APPARATUS (SPEAKER·DISPLAY)
220
KEYBOARD·MOUSE
200
150
CD-RW DRIVE
153:
CD-RW DISC
201:
OPTICAL PICK-UP
202
PICK-UP SERVO SYSTEM
203
ROTATION CONTROL SYSTEM
206
BUFFER MEMORY
204
RECORDING/ RETRIEVING DATA PROCESSING SYSTEM
205
SYSTEM CONTROL CPU

FIG. 31

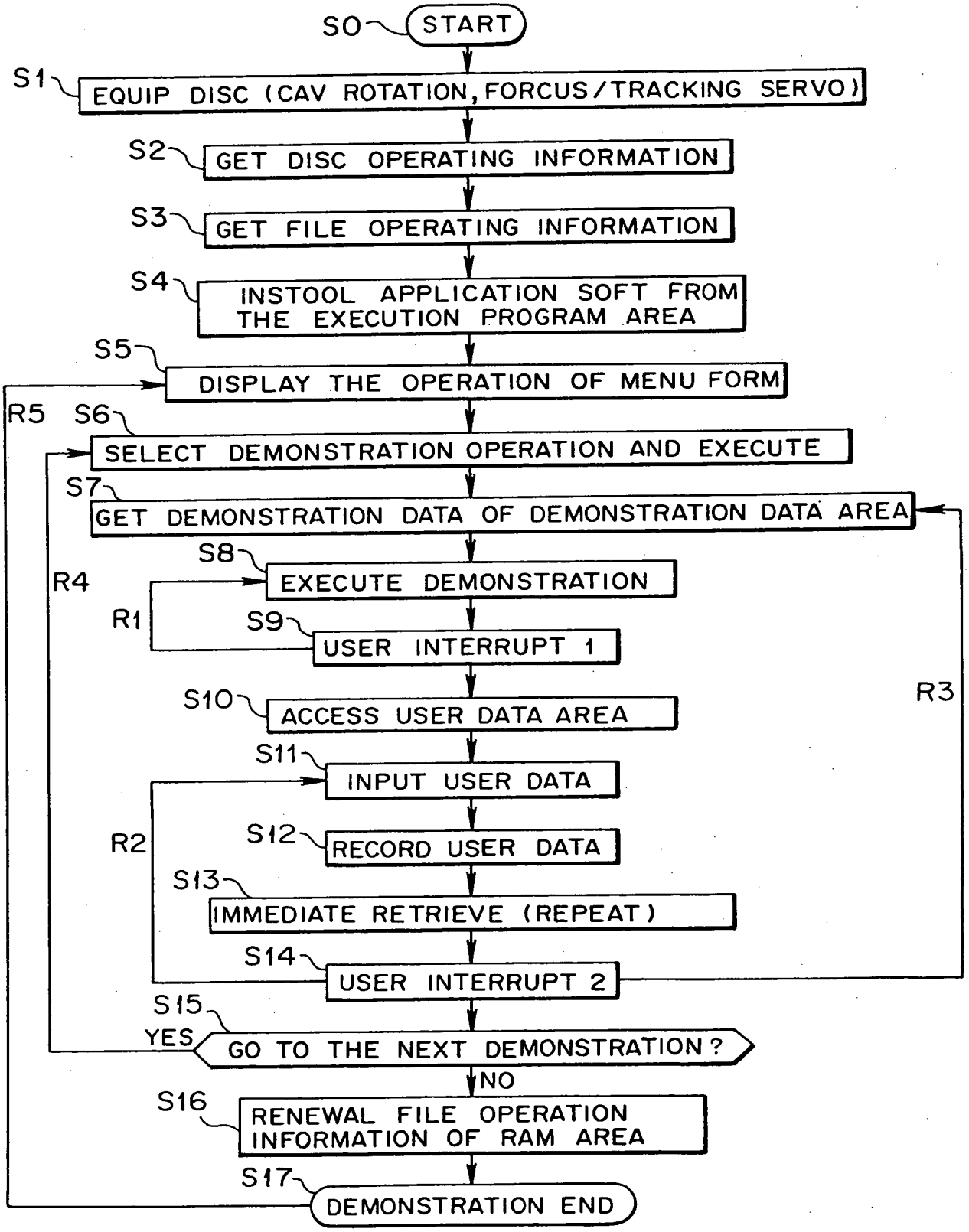

S0
START
S1
EQUIP DISC (CAV ROTATION, FORCUS/TRACKING SERVO)
S2
GET DISC OPERATING INFORMATION
S3
GET FILE OPERATING INFORMATION
S4
INSTOOL APPLICATION SOFT FROM THE EXECUTION PROGRAM AREA
S5
DISPLAY THE OPERATION OF MENU FORM
R5
S6
SELECT DEMONSTRATION OPERATION AND EXECUTE
S7
GET DEMONSTRATION DATA OF DEMONSTRATION DATA AREA
S8
R4
EXECUTE DEMONSTRATION
R1
S9
USER INTERRUPT 1
S10
ACCESS USER DATA AREA
R3
S11
INPUT USER DATA
R2
S12
RECORD USER DATA
S13
IMMEDIATE RETRIEVE (REPEAT)
S14
USER INTERRUPT 2
S15
YES
GO TO THE NEXT DEMONSTRATION?
NO
S16
RENEWAL FILE OPERATION INFORMATION OF RAM AREA
S17
DEMONSTRATION END

FIG. 32

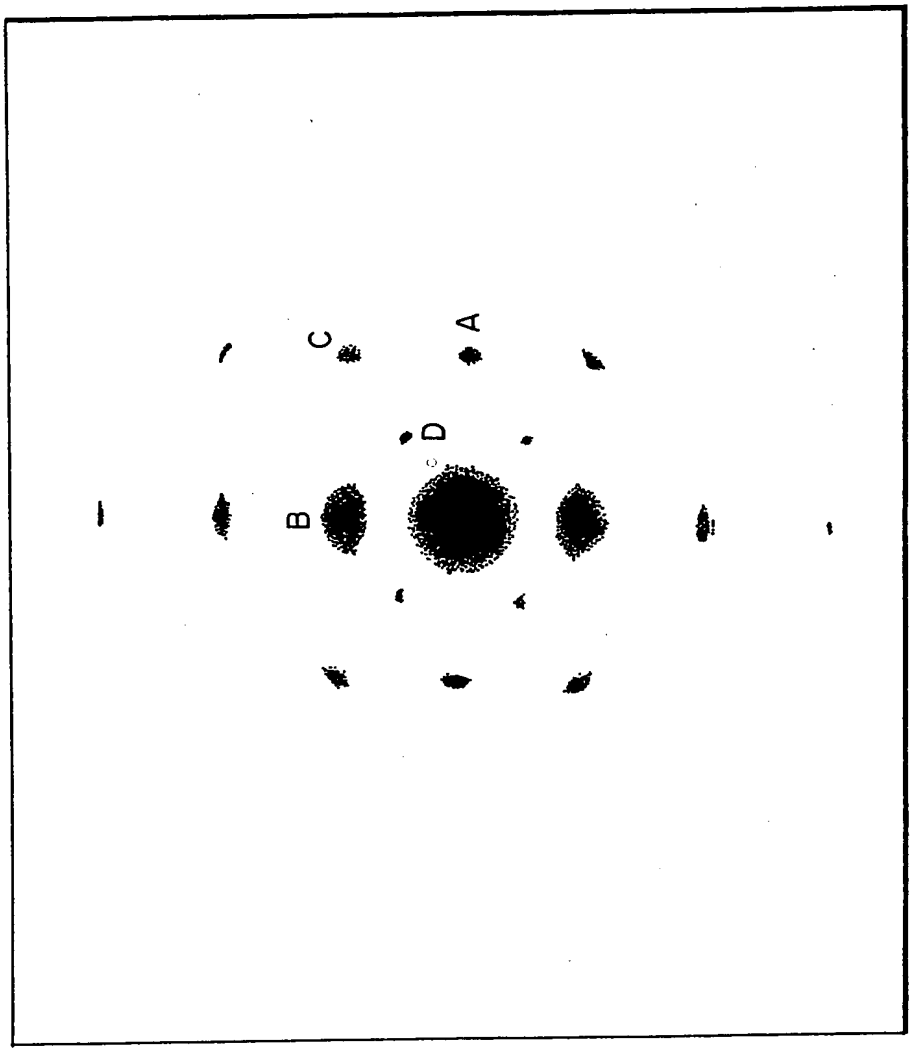
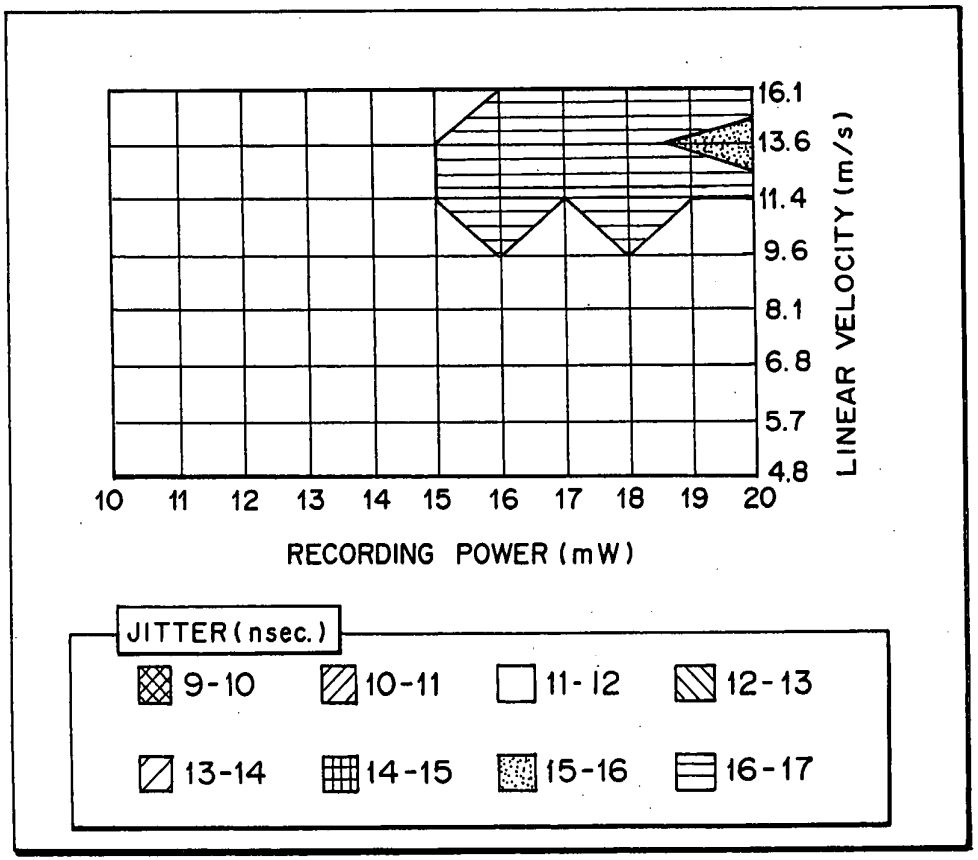


FIG. 33


16.1
13.6
11.4
9.6
8.1
6.8
5.7
4.8
LINEAR VELOCITY (m/s)
10 11 12 13 14 15 16 17 18 19 20
RECORDING POWER (mW)
JITTER (nsec.)
9-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17